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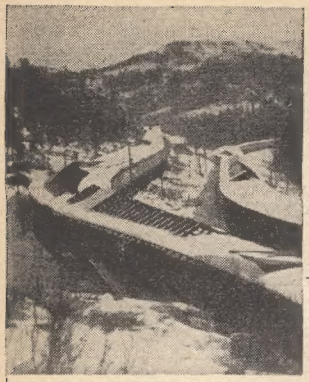

RAILROAD

MAGAZINE

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By Herb Mott

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Train on the Highway

By W. J. Granberg

WHEN freight cars suddenly began appearing on the highway in eastern Washington, the jackrabbits took off through the sagebrush to spread the word of a railroad gone astray. The wheat farmers had a time of it deciding it was no mirage, that the boxcars were actually being trundled down the highway, where no self-respecting railroad would venture. They were on the highway all right—61 of them, to make the count exact. For the Great Northern Railway Company it was a clever, if unusual, way to get its stranded rolling stock back into service just at a time when cars were needed badly.

Trouble came to the Mansfield and Douglas branch lines of the GN in June, when eight sudden cloudbursts washed them out, along with nine bridges within a distance of nine miles. Sixty-one boxcars, one locomotive and a coach were stranded. On their way to the Waterville wheat country to clear the elevators of the 1947 crop, in order to make room for 1948's bumper yield, 46 cars were left high and dry and without tracks at Mansfield, 13 at Douglas and two at Alstown.

The big problem was how to rescue the badly needed boxcars and get them back into service. Tom Brennan, trainmaster at Wenatchee, and Roadmaster A. C. Manduchi, along with officials from Spo-

(Continued on page 8)

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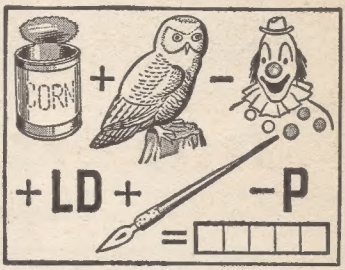

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(Continued from page 6)

kane, talked the problem over with truck haulers. Could the cars be carried down the highway to Coulee City and be put back on the tracks? There was some doubt. If the wheels of the cars were removed and there was a derrick at each end to load and unload them, it *might* be managed.

Then a house mover from Omak, Wash., H. B. Freel, said he could run the cars onto a trailer, direct from the tracks, and push them back onto the line at Coulee City. It sounded like a neat trick, if it would work, and after listening to Freel's stories of how he had moved houses and huge barns up and down hills and across country, the GN moguls gave him the nod to go ahead.

Freel fashioned a 52-foot trailer by using two short-axle house-moving dollies with dual tires. He hooked them together with two stout timbers and then bolted rails over them on which to rest the cars. The trailer stood only three feet high from road to rails. The truck to do the pulling was a 1941 model, 165-horsepower job with three axles and dual chain drive. The entire rig was 70 feet long.

The freight cars made an ungainly load. They ranged from 44 to 50 feet in length, were 10 feet six inches wide and stood 13 to 15 feet in height. Their weight ran from 44,000 to 50,000 pounds. Car, trailer and truck weighed just under the 68,000 pounds for which Freel had a highway permit.

While the kibitzers at Mansfield stood around and said it couldn't be done, Freel backed his rig up to the dead end of the rail line, secured a cable to the first car and gently pulled it onto his trailer with a small tractor. He tied the car to the trailer timber with five chains, two at each end and one at the middle, twisting them tight with a steel bar and tying them down.

Slowly, Freel tooled the truck onto the highway. The load looked top heavy, but it stayed on and farmhands rubbed their eyes in amazement to see a boxcar moving

(Continued on page 10)

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Citizens looked twice when this boxcar was towed through Washington wheat country

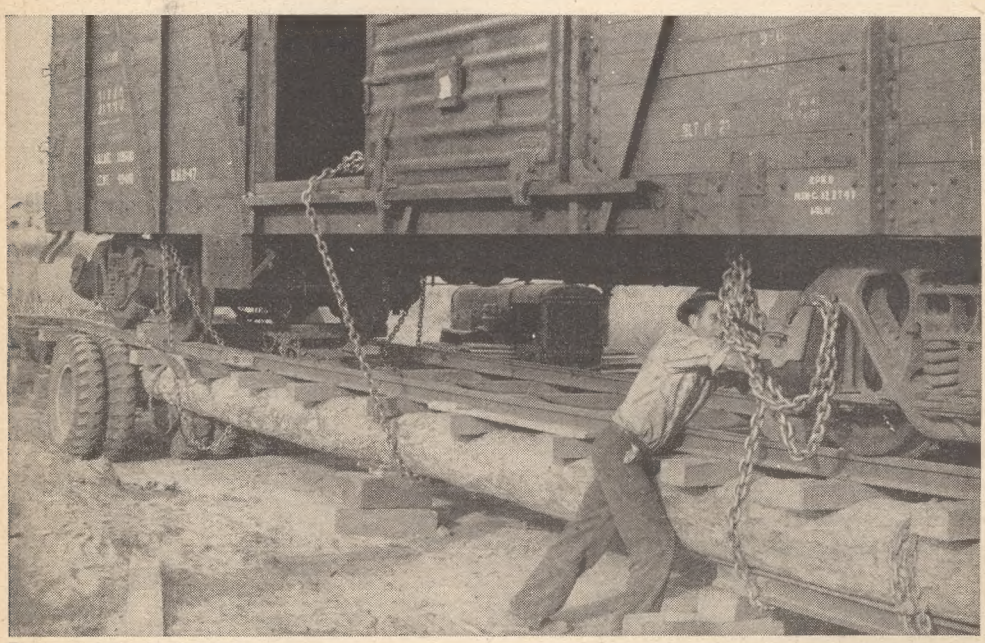
(Continued from page 8)

down the highway beyond the waves of wheat. The 32-mile trip to Coulee City took almost three hours. There were no overhead clearances along the route to worry about, but in the town several bunches of power lines had to be held up by a highway-going brakeman atop the car. Getting the car back onto the tracks was just as easy as getting it off: Freel backed the trailer up to the dead end and pulled the car off with a truck.

Railroad officials breathed easier with word from Freel everything was okay, and went ahead rebuilding their washed out line. Freel and his crew grew better with practice and soon were able to load and tie down a car, ready for moving, in from 20 to 30 minutes.

"It's easier than moving a house," he commented.

Maybe so, but folks in the wheat country west of Coulee City will no doubt start counting time from the day they saw a railroad freight car moving down the highway, truck and trailer hidden by the wheat, until it looked for all the world like the railroad had gone astray. There was talk, too, that the farmhands were mighty careful for several days about the stuff they drank, until someone convinced them it was really the GN railroading in a new way to get its rolling stock back into business hauling wheat.



Photos by W. J. Granberg

To secure the boxcars to the trailer, five chains were needed—two forward, one center, two rear. "It's easier than moving a house," said Omak's H. B. Freel

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ROCHESTER VIGNETTE

HOME of the world's largest photographic equipment plant, Rochester, N. Y. is also a veritable garden spot for the camera-toting railfan. The New York Central, Lehigh Valley and B&O offer passenger service, while the Erie and PRR, having freight lines within the city limits, combine to offer the fan a wide choice of rail subjects.

The Genesee River with its beautiful gorges and waterfalls, flows through the center of the city, dividing it in half. Navigable for a few miles of its length, the river is paralleled by a unique stem of the New York Central which could rightly be termed a "big-city branch line." Its trackage at some spots hugs a narrow shelf in the gorge, offering many scenic possibilities for the photographer.

Near Lake Ontario stands the picturesque Charlotte Station. Now used only for a freight warehouse, the old, wooden structure still holds its place on the bank of the Genesee. Here the line maintains a small freight yard, where at times a venerable *Mikado* (which also doubles as a freight engine) can be observed switching strings of hopper cars. The hoppers are moved by the trainload to a coal wharf several miles up the branch. Their contents are emptied into the holds of giant coal boats which ply the waters of Lake Ontario between Rochester and the Canadian ports.

These coal trains keep the rails shiny and are probably the main reason for the line's existence. The schedule is rounded-out by an occasional peddler freight and a mixed train which makes its appearance several times a week. The latter consists of a few freight cars and an old combine which serves to carry lcl freight and the passengers the line seldom gets.

From a point a short distance below the station, one can observe a lighthouse perched on a hillside overlooking the river. Built in 1863, it is no longer in service but is still occupied and frequently visited by photographers and art students. A place of scenic beauty, the lighthouse is a city landmark and no tour of the line would be complete without visiting it, with a loaded camera.

After passing the lighthouse, the line curves sharply toward the Genesee, crossing it on a steam-operated swing bridge. It is a thrilling sight to watch the huge span swing open to let a boat pass through the narrow channel, then close for a train waiting on the opposite bank of the picturesque Genesee.

Perhaps branchline railroad is not to your liking. Then a visit to the Central's Atlantic Avenue or the B&O's Buffalo Road engine terminals will prove worth your while. Both of these locations are steeped in heavy railroading, with large smoky roundhouses and shops and an array of impressive motive power that would satisfy any heavy-engine connoisseur. When I visited the New York Central's terminal, the engines ran the gamut from modern, heavy mainliners to ancient mills waiting to be hauled to Buffalo for scrapping.

These are but a few of the many points of interest that should place Rochester high on your list for a railfan vacation.

C. F. Donaldson, Jr.

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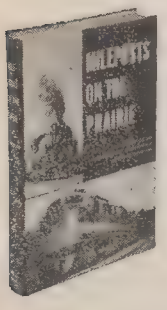

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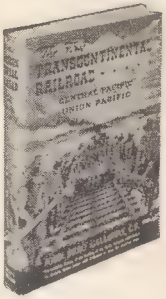

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Born Thirty Years Too Soon

William Riley McKeen Got His Air Foil Sections Reversed, But Had Trouble with the Power Transmission

A NEW ERA in American railroading was begun by that mysterious activity in the north end of the UP erecting shops at Omaha early in 1905. But the man who instigated it, W. R. McKeen, Jr., then superintendent of motive power and machinery for the UP was, in the popular phrase, "born 30 years too soon".

Parts clearly not meant for a locomotive were gathered together— forgings, machined parts, an *inverted boat* from the car shop. The area was roped off and the guessing contest was on. A switcher brought in a boxcar from which workmen unloaded a 100 hp. gasoline engine, built by the Standard Motor Works of Jersey City, N. J. It was a marine type engine, one of the most powerful of that early day of gasoline power. Indeed, five years earlier marine engine power had been used to move another pioneer streamliner, the first Zeppelin. When the engine was assembled and mounted on one 4-wheeled truck, the body attached, and the resulting vehicle sent to the paint shop for a coat of maroon, a new era in railroad transportation had begun—30 years too soon. This was the Union Pacific's Motor Car 1, 4-wheeled wooden predecessor of the line of distinctive McKeen Motor Cars which in the following years served many branch and shortline railroads.

The construction of this pioneer rail

Photos, unless otherwise noted, from the collection of the author

Shaped like inverted boats, Harriman-sponsored McKeen motor cars were inspired by the trim lines of the racing yacht *Reliance*. Had gasoline engines of his day matched the inventor's zeal, Budd wouldn't have caused a ripple with its RDCs

streamliner has been preserved by Floyd Schultz, later mechanic on the "Red Flash", in a full page article in the *Times* of Clay Center, Kans., for Mar. 28, 1935, coincident with the first of the present breed of UP streamliners. A contemporary account in *Railroad Gazette* is more formal. Motor Car 1 was only 31 feet over sills, and had four 42-inch wheels. Only the front pair was powered. All subsequent McKeen cars used 42-inch drivers, but 33-inch trailing wheels were adopted. Yes, the novel shape was an inverted boat; it was inspired by the racing yacht *Reliance*. The sharp prow was to cleave the air and permit high speeds, while the rounded rear was to prevent the vacuum present at the rear of square-ended cars. In a speech, years later, McKeen attributed the shape of his cars to a study of the Berlin-Zossen and Louisiana Purchase Exposition electric railway speed tests. It is interesting to note that these same tests of car body shapes at speed were also instrumental in shaping the famous windsplitter interurban cars of the Winona Ry. and Indiana Union Traction. But, as the author of a C.E.R.A. monograph on the Union Traction points out, the pointed front and rounded rear car is theoretically capable of higher speeds in reverse, according to modern knowledge of streamlining.

WILLIAM M. SCHOPP

Railroad Gazette, undoubtedly quoting an official release, said that the ventilation on Motor Car 1, accomplished with Cottler ventilators, was exceptionally good. Mr. McKeen claimed to have had air-conditioned cars as early as 1904—which may have been similar to the round windowed, center doored, all steel UP coach of 1907 shown in the photo above. This had ventilation via the "horns" on the corners. It represents a true McKeen passenger

Left: Closeup of M83s power truck. In this instance the flywheel was completely exposed; some other models sported a protective metal housing. Power application was to the leading wheels only, by means of an air-actuated clutch and Morse silent chain

* * *

* * *

Right: Opposite side of leading truck. Chain-drive connection to water pump was encased; flexible hose carried water to front radiator. Motor-cooling water did double-duty as ineffective car-heating medium on early models

trailer, the shorter versions on the UP and SP being in reality motor cars with front ends removed.

Although the body of the first McKeen car was wooden, it was watertight and could be flushed out with a hose. The lighting was by acetylene gas from fixtures placed between the windows, above the passengers' shoulder level. That this system was not without hazard is attested by Floyd Schultz's story of the first M4 at Grand Island, Nebr. Schultz was standing outside the engineroom talking with mechanic, later motorman, P. F. Bischeld who had just repaired the acetylene system and lit the car lights. Bischeld walked around to the front of the car and struck a match to light the headlight, which was in the standard position, low on the prow. Unfortunately a defective angle in the acetylene line had let the whole nose of the car between inner and outer walls fill with the explosive gas. The match touched this off, blowing out the top of the engineroom and breaking all the glass in the front end of the car—which fortunately passed over the heads of the stunned mechanic and engineer.

Later cars were equipped with electric lighting from batteries charged by a generator connected to the engine by a Morse silent chain—when the chain would stay in place. Others were illuminated by gasoline, with the carburetor in a box under the rear of the car. This system was charged with air at 40 pounds pressure and was also subject to failure. In later years the UP and other roads installed Kohler car lighting systems with success: closing any electric circuit on the car started a generator which ran until current was no longer required.

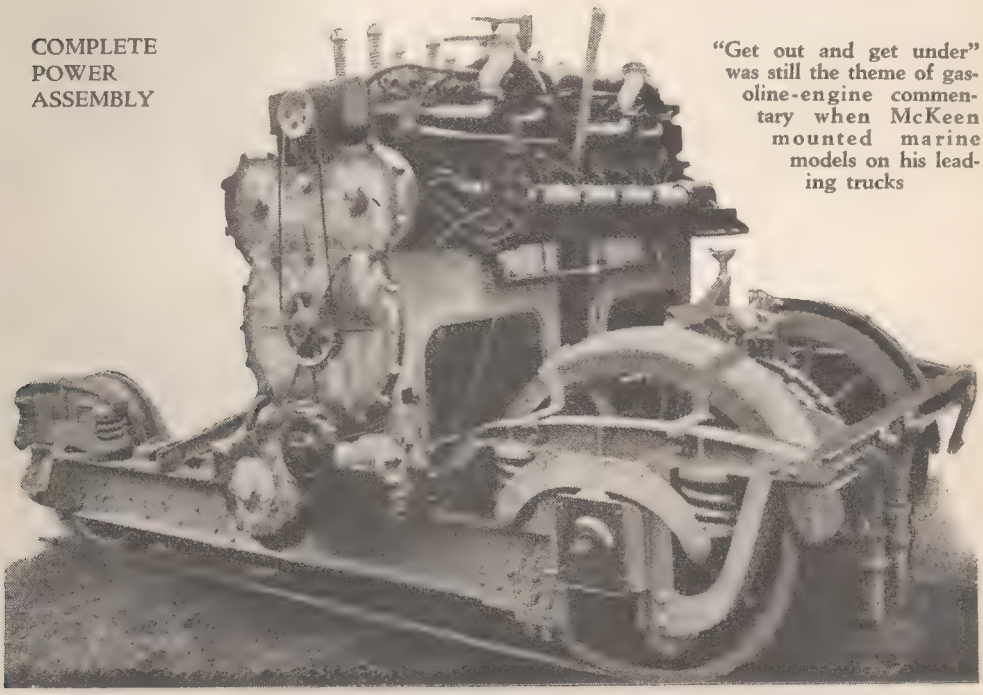
The heating system of the M1 and subsequent McKeen cars was by hot water from the motor cooling system. Excess heat was also exchanged by means of radiators under the car—and in a few cases, on the roof. One try was made at heating the first car by running the exhaust pipe around inside the passenger compartment, but this failed because there was too much back pressure on the motor. While the use of the motor cooling water to heat the car was a success in moderate climates, it was, of course, useless after the car had laid over all night in sub-freezing weather. For this reason, an old-fashioned stove was also installed. Later UP installed hot water heating systems with small boilers in the baggage compartments.

In July, 1905, *Railroad Gazette* gave a floor plan of the M1 and further details. The cylinders were eight-by-ten inches, six in number, placed upright and across the car. Later cars had ten-by-twelve and even larger cylinders. The article gives an itinerary of successful runs of the novel car to Portland, Ore., where it was to have been placed in service. "It should be stated that the car has required but slight running repairs, and has not been out of commission since starting its journey."

Mechanic Schultz casts doubt on this statement by saying that the best grapevine information available was that Motor Car 1 was pushed and pulled by freight trains into more than one terminal. Yet a report would always be sent to Omaha, "Motor Car 1 arrived on own power—doing fine!"

THE M1 was not placed in service out of Portland, but was assigned instead to the Kearney and Callaway, Nebr. branch where for years it alternated with the 8-wheeled M2. What with the hazards of the wooden body, the hot motor and the acetylene gas, the M1 finally burned while on the employes' run between Omaha and Council Bluffs. It was then rebuilt with a box type body, square all around, and continued in employes' service. No photos of this second incarnation are known to exist.

Motor Car 2 caught fire, on the Callaway branch, and was scrapped. M3 ran



COMPLETE POWER ASSEMBLY

"Get out and get under" was still the theme of gasoline-engine commentary when McKeen mounted marine models on his leading trucks

Air-conditioned M1 had a water-tight wooden body; looked like a northbound tear drop going south. *Opposite page:* Maiden trip of a McKeenliner on the Hocking-Sunday Creek Traction Company's line out of Nelsonville, Ohio; February 10, 1910

on the Southern Pacific Lines in Texas and then was returned to Omaha and not used again. M4 ran on the Chicago & Alton and was even lettered for that road. But it was returned to the UP and ran on the K and C and Loup City branches. After the acetylene explosion she was rebuilt and run until worn out. The first M4 was a 55-foot car, but the second M4, built years later, was a 70-footer.

M5 of the UP was used for a while west of Salt Lake City on the old San Pedro, Los Angeles & Salt Lake, then returned to Grand Island for service on the Callaway and Loup City branches. M6 was also used on branches in Nebraska.

M7 was the first McKeen Motor Car with the famous round windows which increased the resemblance to the "racing yacht Reliance inverted". It was also the first car with the distinctive depressed center doors. The M7 made an extensive tour through the east before being placed in road service.

Regarding the famous round windows, the 1912 (and only) McKeen catalog says: "airtight, water-tight and dustproof, three features not heretofore attained in a single car window. The frame is made of aluminum. The sash 24¾ inches in diameter is hinged at the top and when raised is automatically locked to the car ceiling, thus giving a full window opening. The effect produced with all windows open being that of a summer car, this convertible feature is immensely appreciated by the public. By means of the round windows a panoramic view of the surrounding country is obtained—an innovation impossible of attainment with the old fashioned square windows. An important advantage obtained by the use of the round window is the enormous gain in strength of car framing which permits the utilization of the car side as a combination plate and truss girder." Notwithstanding, McKeen cars were also available with square windows having rounded transoms. The company also offered a choice of straight or parabolic wedge noses.

The UP M8 was the first car with a McKeen engine, rated at 200 hp. The engine was always mounted as an integral part of the motor truck and swung with the truck on curves. Only the front wheels, the 42-inch drivers, were powered via a Morse silent chain drive through an air operated clutch. There were two speeds in each direction. The M9, although begun before the M8, was

delayed by late arrival of a 150 hp. Sament engine. The M9 had square windows.

By 1907, according to *Railroad Gazette,* the Union Pacific operated McKeen Motor Cars in Nebraska on the Kearney-Callaway branch; Beatrice-Lincoln branch; Loup City-St. Paul branch; and in Kansas on the Lawrence-Leavenworth line. Twenty-two more cars were said to be under construction, the first of which was tested by Mr. McKeen, himself, who always supervised the breaking in of his cars. This car, the M10, first car with an electric generator and with the motorman's door on the left, backed up a ½ of 1 percent grade with ten empty freight cars coupled to her nose, switching them back and forth. Again she nosed a 40-ton gondola of coal up a 7.6 percent coal chute incline. The motor cars were not meant for such rugged service and only accomplished these deeds by the liberal use of sand and savvy, and, in the case of the coal chute, by making a run for it.

Great pulling power was never the forte of McKeen cars, one good reason being that only two of eight wheels were powered. Felix Reifschneider, author of several books on electric lines, states that the Central New York Southern (Ithaca-Auburn Short Line) had two McKeens which *could* make the road's 3 percent ruling grade in high gear, but too slowly for the passengers. One trailer was all that most cars could manage and some "poor steamers" couldn't even do that.

The mysterious "double trouble" twin-motored McKeen car, which was equipped with two 300 hp. engines once pulled—it is said—twenty freight cars. But in 1940 this car was operating out of Columbus, Nebr. with only one trailer. The story I hear is that in 1941 somebody started the car's two motors in opposite directions and let in the clutches. Well, we needed scrap in those days anyhow. Further particulars of this car are lacking.

Again there was a story of two McKeen cars double-heading a five-car passenger train. This turned out to be the regular run of a McKeen motor car that had been rebuilt with gas-electric drive, four wheels powered. It normally pulled two coaches, but this day a standard McKeen car was headed for the shops and was coupled into the train along with a few more shop-

Left: **"Air-tight, water-tight and dust-proof" round windows of McKeen cars like M83 gave the traveling public a diver's-helmet view of the countryside, but when inexpertly secured, had the troublesome habit of klunking down to form a picture frame around unwary heads.** ***Right:*** **Number 5 of the Lakeside & Marblehead, purchased new in 1916. This is the only McKeen car still in existence with original drive; now located in Weir Bros. junk yard, Sandusky, Ohio**

bound coaches. It must have been an interesting sight. So must the solid train of seven McKeen cars sent out from Omaha to the Southern Pacific—said to be the first all-steel passenger train west of the Mississippi.

Subsequent motor cars for the UP were not particularly noteworthy until the M21, which was the first 70-foot car. M23 and M24 were the first 300 hp. cars, meant for pulling passenger trailers. Although begun early in 1913, they were mothballed and not completed until a later date.

The growing demand for McKeen Cars led in July 1908 to the formation of the McKeen Motor Car Company. Mr. McKeen, the inventor of the cars, resigned his position as superintendent of motive power and machinery of the UP to become head of the new concern. The new company took over the old Union Pacific shops at Omaha with the blessing of E. H. Harriman. The company was a subsidiary of the UP which owned over half the stock, the remainder being divided among Mr. McKeen and his associates. Capitalization was a million dollars. Employes were paid by UP checks.

Railway Age Gazette in a contemporary article described the cars and their McKeen motors, which were for the most part rated at 200 hp. and 350 rpm. Power was transmitted to the wheels with a 5-inch Morse silent chain drive and an air-operated clutch, giving the remarkable transmission efficiency of 96 percent. The engine was reversible and could drive the car at 60 mph. Although there have been reports of speeds up to 75 mph. the top speed was usually around fifty. In fact, one ex-McKeen motorman told me that while operating No. 1000 on the Chicago Great Western, he could not make 60, even on a downgrade!

The air pump was driven by the crankshaft and was located on the right side where, in photos, it may be seen projecting in front of the chain housing. The housed chain drove the water pump.

A GREAT DEAL was always made of the strength of McKeen Motor Cars, which, except for the M1, were made of steel, a unique feature in the first decades of the century. Mr. McKeen also pioneered in building an all-steel boxcar. The McKeen catalog of 1912 shows two cars that met in a head-on collision at a combined speed of 80 mph. While the front ends were well stove in, the passen-

ger compartments were not reduced to the customary kindling of wooden car days.

To start a McKeen motor, you shifted the cam shaft to convert three of the six cylinders into a 2-cycle air engine. After compressed air had done its work, the engine was switched to gasoline. The cost of operation was reported as 14 to 18 cents per car mile. Mileage, even with those big cylinders, was three to the gallon. Later, carburetors were redesigned to use kerosene as fuel after the motors had been started on air and nursed on gasoline. Kerosene operation, while a technical success was a practical failure. Most motors were reconverted to gasoline or petroleum distillate.

To reverse a McKeen car, the motor had to be stopped, then restarted in the other direction after shifting the cam shaft. Although a skilled motorman could accomplish this by throwing in the clutch, he would also use considerable brainwork to avoid reversing. For instance, on the Virginia & Truckee, Carson station is on a slight grade. Coming in from Minden, the motorman would leave the station headed for Reno. This was just to break the ice, for he would then throw her out of gear and coast backward down through the yards to gas up with his 30 gallons for the daily 90 miles. Later he would roll out of the car shed backwards and proceed under forward power up to the station. Occasional failure of any of these reverse coasting movements was the cause of much Washoe profanity.

Compressed air starting was not 100 percent reliable at first. Schultz tells how the M1 sometimes would use up all the air and still not start. Sometimes it had to be shoved by a steam switcher. Another time they hitched a team of horses to the M1 to haul her around until she started—and did, and bowled over the horses! A motorman in the Northwest had one shot of air left after repeated failures to start his car. He primed the cylinders with ether—and blew the exhaust pipe off! The pipe stayed on the station platform for many a month because, as he put it, "she sounds so good with the muffler off". In later days the cars were equipped with an auxiliary air pump designed by Mr. McKeen. This was a one-cylinder gas engine in which the one piston also served to compress the air on the down stroke.

At the time of formation of the company, 55- and 70-foot cars were available with various combinations of passenger,

First 70-foot McKeen car, the M21 was rebuilt with gas-electric drive and, according to last reports, is still in operation on the Union Pacific

smoker, mail and baggage compartments, with seating capacities up to 105. They also made a 55-foot freight motor car, a 31-foot mail-baggage trailer, switching locomotives for industrial plants, gasoline engines and air compressors. Although prices are not given, Beebe and Clegg's book on the Virginia & Truckee gives the cost of that road's McKeen car, No. 22, delivered in May 1910, as $24,000.

There are many freaks in McKeeniana which are of special interest. In fact, after examining these freaks, I am ready to believe that almost anything was possible. The 55-foot freight motor car mentioned above was built for the Minneapolis & Anoka Gasoline Motor Ry., and was called a convertible car. There were square windows at intervals and an open back platform so that the car could be used for passengers by merely installing folding chairs.

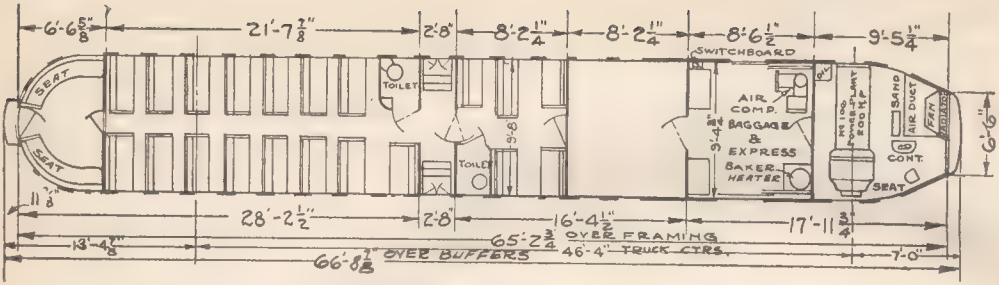
There was a concreting car for the Clinchfield, a self-propelled car to carry materials and mix concrete to line tunnels along the route. Although the McKeen company built this odd chariot, it is recognizable only by the power truck with the characteristic large and small wheels. Another interesting vehicle was the McKeen wood burner for railroad use.

There was a McKeen bus built in 1915 for highway service between Minneapolis and St. Paul. This was instantly recognizable as a McKeen product by the rounded rear, the portholes, the depressed side door. The front end had a conventional hood and windshield. $5000 was the price, according to *Engineering News*. The company planned a similar bus with flanged wheels for rail service for $8000, but I am unable to find any evidence that one of these was built.

Other cars were built for export. Two went to the Victorian Rys. in Australia equipped with buffers and, to accommodate the universal high platforms of that state, with center doors "depressed" *up* into the roof. Three narrow gage cars went to Queensland, equipped with 4-wheel drive motor trucks. Two cars of regular design went to the Alberta & Great Waterways in Canada. Others may have been exported to Cuba, Mexico and Spain.

The following is a list of roads using McKeen cars, compiled from a number of sources including the 1912 catalog. The number in parentheses represents the number of McKeen cars used, if known. Victorian Rys. (2); Rock Island (5); Arizona Eastern; Maricopa & Phoenix; Southern Pacific (19 in 1923—Santa Fe sold them to UP); Los Angeles & San Diego Beach; San Pedro, Los Angeles & Salt Lake; San Diego & Guyamaca; Denver, Laramie & Northwestern (2 sold to Great Western sugar road in Colorado, later sold to UP); Union Pacific (21 by 1923); Oregon Short Line; Woodstock & Sycamore Traction Co.; Illinois Central (1, No. 111); Chicago Great Western (5); Charles City Western; St. Joseph & Grand Island; Southern; Ferrocarril de Sonora; Ann Arbor (5); Chicago & Northwestern (1); Central Pacific; Silver Peak RR. (in Nevada, sold to Redwood Lumber Co. in Calif.); Virginia & Truckee (1); Buffalo, Rochester & Pittsburgh; Erie; Jamestown, Chataqua & Lake Erie; PRR; Norfolk Southern; Sand Springs Interurban; OWR&NCo.; Salem, Falls City & Western; Weatherford, Mineral Wells & Northwestern (2); Northern Pacific; Bellingham Bay & British Columbia (left the works with a sign: "Follow me to the red apple country"); Bessemer & Lake Erie; Montana, Wyoming & Southern; Soo; Galveston, Harrisburg & San Antonio; Central New York Southern (2); Morgan's Louisiana & Texas (Sunset Central); Arkansas Northwestern (may have been bought from Woodstock & Sycamore); Motley County; Alberta & Great Waterways; U. S. Gvt. (Yuma Valley RR); Lakeside & Marblehead.

HOW MANY McKEEN locomotives were built? At least one, maybe as many as six. The one definite McKeen locomotive was publicized in the trade journals for 1915. It was sold to (I'm steering clear of the term built for) the



Floor plan of Chicago, Rock Island & Pacific's Number 9024, a unit built in 1910 and remodeled with truncated nose, as shown, in 1925

Motley County RR down in Texas which ran from the county seat, Matador, out of Roaring Springs Junction on the Quanah, Acma & Pacific. This 0-4-2 gasoline locomotive with outside connected drivers was, according to one account, delivered under its own power.

An old employe tells of another McKeen locomotive working around the Omaha shops as early as 1913. I have heard of another tried out in the UP's Aspen Tunnel. Another rail man who wandered into the McKeen shops in December of 1917 tells that there was a gas locomotive in storage there, in a shed. My studied guess is that these were all the same engine; built as an experiment, finally sold to Motley County, returned for mechanical or financial reasons and eventually given up.

The only other McKeen locomotive I have definite knowledge of was built by the Charles City Western, in Iowa, around a McKeen power truck. They simply built a chicken-house-like wooden enclosure over the 0-2-2 drive truck and had a locomotive. They also "improved" the truck by driving the smaller rear wheels with another Morse silent chain. When the buggy was back in Omaha for repairs, McKeen replaced the clutch with his own octaroon clutch (so called because the sliding member moved on an octagonal portion of the driving axle).

The McKeen "Mallet" car ordered by the Southern Utah Ry. was one of the last cars built, late in 1916. It had a 6-wheel front truck, seemingly identical with the drive of the Motley County locomotive. It was meant for the heavy grades on the Southern Utah between Price and Hiawatha. However, the Southern Utah was supplanted by the present Utah Ry. on better grades from Hiawatha to Helper on the D&RGW, so coal traffic was diverted to the newer road, leaving the McKeen car for the only service on the Southern Utah. As early as 1928 the *Mallet* was stored in a shed at Hiawatha, according to C. E. Beveridge, division engineer of the Utah Ry. In 1935 changes necessitated the removal of the car barn, so the coach was taken to another track where it stood in the open until 1939. At that time the track was needed for other purposes so the motor coach was donated to the Utah Ry., which took it to Helper where the chassis was scrapped. The body was placed on the ground near the Utah Ry. enginehouse where it now is used as a shop for the general electrician and as a locker room for car repairmen and inspectors. "The car body is all steel and will probably serve its present purpose for many years," says Beveridge. Did no railfan with a camera ever photograph this historic car while it stood in the open for four years at Hiawatha, Utah?

Similarly, the Virginia & Truckee No. 22 is now spending its last days minus trucks but with pilot, headlight, drawbars, etc. as a roadside diner.

What happened to the McKeen Motor Car Company? From the number of freaks and special cars built, from the small number of roads using the cars that can be added to the 1912 catalog list and

from the reminiscences of old timers, it would appear that after 1913 business was not as brisk as before. In the death of E. H. Harriman in 1909 the company lost one of its most enthusiastic boosters. (It will probably never be known whether McKeen sold his idea to Harriman, or whether Harriman assigned the motor car problem to McKeen.)

During the first World War, when materials were scarce, the shops made captive balloon windlasses for the army. After the war, the shop machinery was used by the UP to make shaped material and store orders. The building is now razed and doubtless most of the priceless treasure in the attic has been burned. In 1920 the Union Pacific bought out Mr. McKeen's interest for a reputed $138,000. In 1922 McKeen moved to Southern California where he built himself an earthquake-proof house of distinctive design and settled down to work a 10-acre avocado ranch. He was always ready to talk railroading and motor cars to any intelligent listener, as some members of the defunct Channel Model Railroad Club will recall. He did not engage in railroad activity after retirement. He died after a long illness October 19, 1946.

It would seem, too, that there was not the demand for the cars. Times were not so tough that a railroad could not run a trusty steam engine and a few cars over a branch and still make money. Motor cars—gasoline, steam and gas-electric—for railroad service were essentially answers to the inroads of the electric lines which by the mid 'teens had already begun to feel inroads themselves—of jitneys, buses and private automobiles. Railroad men were either steam or electric, and a gasoline car, being neither fish nor fowl, met coolness and opposition.

The cars, too, were unreliable, or at least cantankerous. Trained motormen as well as those on roads where the day's pay depended on making a run in a McKeen soon learned to keep the "turtle cars" in service, come what might—except snow. Old steam men who switched to gas running with the option of using a steam locomotive when the gasoline failed, favored the coal burner in every possible way. This helped give the gas cars a bad name. The lack of perfection of the automobile engine during the early part of this century should be considered: get out and get under was the order of the day. How much more difficult was it, therefore, to design and build a gasoline engine of much greater power, one that would compete in reliability with the steam locomotive which had been proved by 100 years of service.

The clutch is usually mentioned as one big weak point. No clutch was designed, they say, that would take the two or three hundred hp. developed by the McKeen motors. If they would hold the drive, they were too harsh in engagement. P. F. Bischeld, who motored the cars and was a company trouble-shooter, says that the clutches were all right as long as the motorman didn't try to pull ten freight cars, or even one freight car. The clutch might then shear off toggle bolts which would drop down in the casing and jam the works until fished out with a bent wire.

A GASOLINE ENGINE has one most efficient speed, but McKeen engines had to vary their speeds. Gas-electric drives, and now Diesel-electric drives, can run their engines at one efficient speed while the speed of the electric traction motors can be varied with series, parallel and resistances, as on a trolley car.

A very few McKeen cars are still in service. The UP has a few modernized to gas-electric drive. Of these I can name only the M16 (not the original M16); and the M21. The Chicago Western has three, also gas-electric rebuilds. No. 1000 is an all mail and baggage motor car, now serving as a switcher at Winona, Minn. Formerly this motor was combined with trailers No. 1001 and No. 1002, which were rebuilt from motor cars, into a name train, the *Blue Bird,* between Minneapolis-St. Paul and Rochester, Minn. One trailer was a coach while the other was a diner-lounge-sleeper, all in one. The

B. W. Kroob, P.O. Box 279, Fort Dodge, Ia.

It takes a sharp pair of eyes to identify Chicago Great Western's 1000, now serving as a switcher at Winona, Minn., as the windsplitting power unit of the one-time *Blue Bird*

two trailers and the motor originally had round windows which were changed to the square with rounded transom type some years previously because the hinged round ones had the bad tendency to klunk down on passengers' heads when inexpertly secured. The trailers are now serving as yard offices, but No. 1000 recently went through the shops and lost just about every McKeen characteristic she ever had. The front is square and the depressed center door is gone. CGW's McKeen cars No. 1003 and 1004 with round windows have been running out of Oelwein, Ia., but are expected to be junked when their run is taken off.

Another McKeen name train was the Capitol Cities Streamliner operated by the Union Pacific between Lincoln, Nebr. and Manhattan, Kans. This was the all mail-baggage McKeen M23, with gas-electric drive and trailer, painted in streamliner colors.

Probably the only McKeen still in existence with original gasoline drive—which won't work—is old Lakeside & Marblehead No. 5, which at last reports was resting in Weir Bros. junk yard in Sandusky, O. Railroad Historical Museums which might like to have this car should know that it took several years to get permission to pull the car over an NYC drawbridge into Sandusky—it was judged in too decrepit a condition for safe transport.

The Rock Island rebuilt five McKeen cars to gas-electric drive with five feet cut off the prow. One car was burned in a round-house and the others were junked in 1938-39.

Tracing the history of various McKeen cars is made difficult by two factors, one of which is the usual transfer of ownership between two lines, neither of which is in existence any more. The Sand Springs Interurban, though, sold their cars to the Midland Valley. But what happened to Pennsylvania No. 4701, a McKeen car pictured in Alexander's book on that road? Many UP and SP cars,

when they had outlived their usefulness as motor cars, were converted into passenger trailers. But what of the Erie's McKeen car?

The second factor that makes tracing McKeen cars difficult was the company publicity department. As soon as the ink was dry on an order, a demon retoucher would take a postcard size view of a standard 70-foot car and dub in the name of the ordering road in large white letters. Many times the car ordered and delivered (if delivered) was quite different in regard to passenger-baggage division, length, type of prow, type of windows and so on. Pictures of Soo Line "Motor Car No. 1" have been disclaimed by the Soo mechanical department. Compare the photos of Ann Arbor No. 5 as shown in the 1912 catalog and as it actually appeared: Note the different style windows.

Tracing is made a little easier by the relatively small number of cars built: P. F. Bischeld gives the number as "around 157." Of these at least 50 are accounted for by the Harriman lines—UP and SP and subsidiaries.

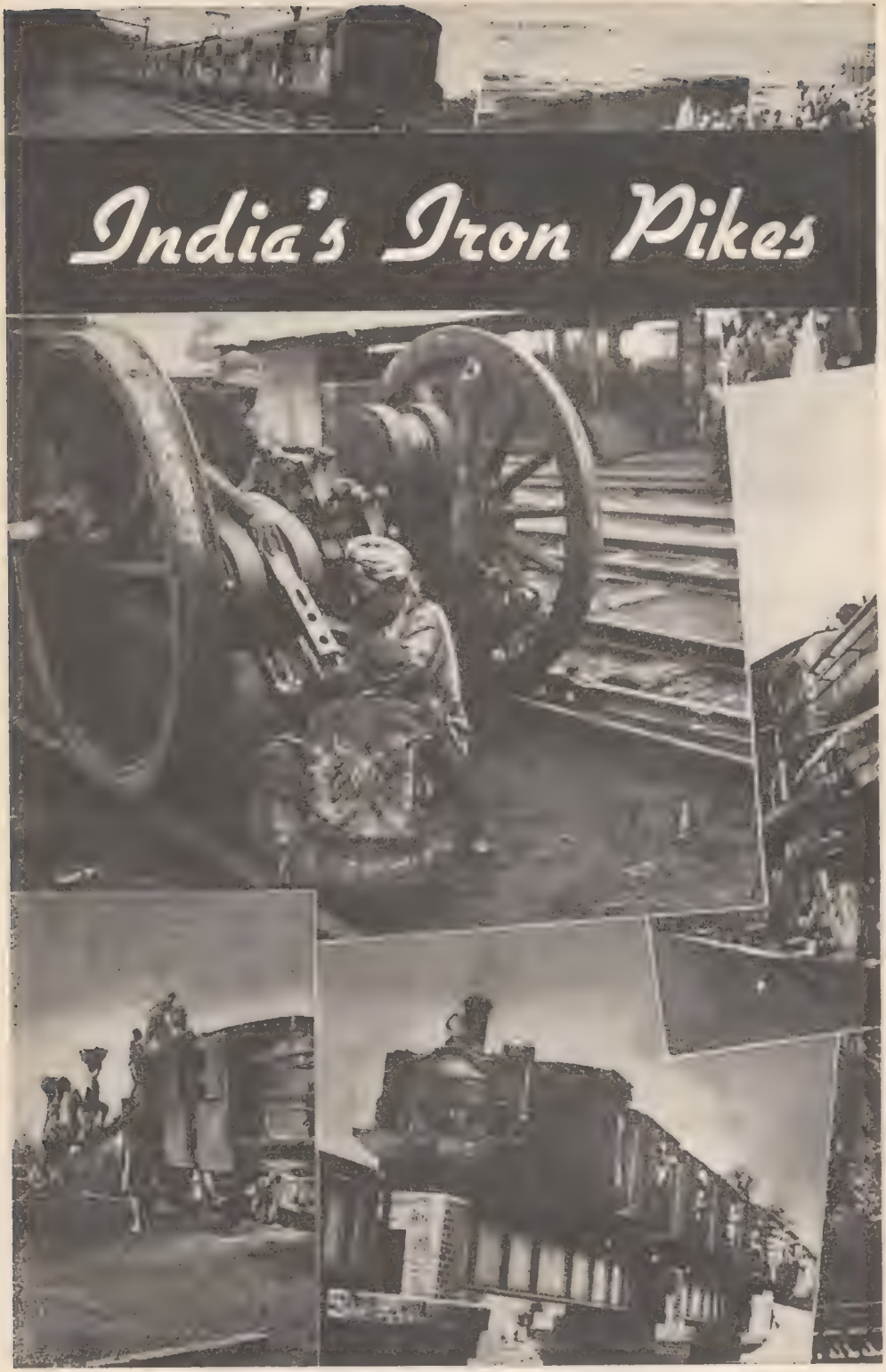
W. R. McKeen Jr., the man who developed the cars which bear his name, was a man of amazing genius, holding over 2000 railroad patents. He was educated at Rose Polytechnic in Terre Haute, Ind., Johns Hopkins and Berlin Universities. Since his father and grandfather owned the Vandalia, it was not strange that W. R. entered railroad service in 1891, first as special apprentice at the Columbus shops of the PCC&StL. He held several shop positions on the Terre Haute & Indianapolis (Vandalia) before moving over to the Union Pacific, where his uncle was a high official. There he held several positions in the mechanical department before climbing to the mouth-filling job of superintendent of motive power and machinery. His brother, Benjamin McKeen, stuck with the Terre Haute & Indianapolis, the Vandalia, PRR lines West, and finally became one of the vice presidents of the Pennsylvania.

McKeen was called a particular man to work for by Bischeld, who was associated with him for many years. He was so sold on the superiority of his motor cars that if a workman would offer a suggestion for improving them he would just whistle, blow Turkish cigarette smoke through his full beard and walk away, usually not giving an answer.

I like to think that William Riley McKeen, Hoosier born, was related to James Whitcomb Riley, the Hoosier poet. For his motor cars at their best had a poetic quality in their lines unequalled by any other development of railroading but William Mason's 4-4-0s.

The story of the McKeen Motor Car as I have recounted it is far from complete. During twelve years of research, I have come to realize that the more I know, the more I know that I don't know. Many questions have been left unanswered in this article, many photos or plans remain to be found, many rumors must be spiked down. Acknowledgment is certainly due the Union Pacific, Rock Island and CGW public relations departments, to P. F. Bischeld, to Floyd Schultz, to Mrs. W. R. McKeen, to Elizabeth O. Cullen and to the many, many others who have helped by contributing a fact or two here and there which when added together helped make the story nearly complete.

India's Iron Pikes



India's Railroads Are Making Progress Against Odds Since British Withdrawal

FROM DURGAI, northern terminus of the North Western Railway, to Trivandrum, southernmost point on the South Indian, and from Ledo at the Bengal & Assam's eastern end to Zahidan on the North Western, 40,500 route miles of railroads of varying gages serve India's 350 million people. From A to Z: Abad Fort to Zozlan; between the long and the short: Veppilaipatti Chattiram and Ib; 7226 stations are situated in tropical jungles, on Himalayan slopes, on fertile plains and on the arid desert. These depots mark the beginnings and endings of runs which in the year 1943-44 carried over 789.3 million people at fares as low as .6 cents a mile, rolling up 28⅓ billion ton-miles and amassing gross earnings of $602,409,393.

Adventure awaits you when you pick your way through sleeping forms on the station platform to board an Indian train. From your car window you can see the coolies at work in the rice paddies and tea gardens of Assam and Bengal provinces, or a caravan of camels loaded with heavy bags of grain in the Punjab. You can compare the trackside village architecture of huddled masses of mud and straw on the plains with the bamboo and thatch

Press Assoc., Inc.

Imagine 32 million hoboes "riding the rods" on American railways; yet, in a recent 6-month period fully that many ticket-less passengers rode Indian trains. This was under normal circumstances, unlike scene above where Moslem swarms flee Hindu India for newly partitioned Pakistan

bashas in the jungles or with the beautiful marble Taj Mahal seen when crossing the Jumna at Agra.

You'll appreciate airconditioning in the burning Sind Desert where temperatures as high as 146 degrees F. have been recorded in the cab of the North Western's *Karachi Mail.* At stops in the night you'll be awakened by vendors' long-drawn nasal wails, *"Garam cha-a-a, dudh gara-a-am!* (Hot tea, hot milk!)." Brown naked children dance and shout with every passing train. Beggars, ragged and dirty, lift their hands to their brows in *salaam,* asking for *bahksheesh* which might be money, cigarets or biscuits.

Every station of size has its European, Hindu and Moslem refreshment rooms and all stations have two water fountains or dispensing booths, each with a small sign, "Drinking Water for Hindus" or "Drinking Water for Moslems" and "Bathing Strictly Prohibited"; the new Indian constitution, however, renders these anachronisms which shall gradually disappear in the near future. The Indian counterparts of our redcaps wear red turbans and cloaks and clamor for your luggage at three cents per piece and invariably hold out for more later on. At the ticket window, where you are pushed and jammed by shouting people, a sign warns you to beware of pickpockets.

The railways have been a great civilizing influence, bringing the outside world to a country where only a small percentage of the people are literate—where a few tribes still hunt with bows and arrows and collect human heads. They have been one of the greatest factors in reducing the number of devastating famines which have plagued the country for ages. If you think railroads are important to America where four people share one motor vehicle, think what they mean to India where they carry 90 percent of the transportable goods and where there is one car among every 2440 persons!

American railroads employ about six people for every route mile at an average wage of $2700 and upwards a year. A route mile in India requires 21 employes whose average yearly earnings run about $180.

Indian railroading began 97 years ago when the first train ran 22 miles from Bombay to Thana. Today, the *Frontier Mail* runs from Bombay on the Arabian Sea to Peshawar, one of the last outposts of the wild North West Frontier, a distance of 1446 miles in 52 hours 35 minutes. This train offers the fastest schedule connecting the strategically important Frontier (of "Bengal Lancer" fame) with the rest of the country. One of the speediest trips is made by the Great Indian Peninsula Railway's deluxe *Deccan Queen*. The electrified train does the 119-mile run from Bombay to Poona over the 2.5 percent, 18-mile Bhore Ghat grade in three hours.

The 42 systems operating in 1944 were divided into three groups, according to their earning power. Thirteen Class I roads grossed 50 *lakhs of rupees* ($1,515,000) or more yearly. Eleven Class II lines grossed between $303,000 and $1,515,000, and the eighteen companies earning less than the minimum for Class II fell into Class III. The East Indian Railway headed the list of gross earnings for 1943-44, doing over $100 million worth of business.

The North Western had 6885 route miles open, making it the longest system. Honors for operating the shortest line went to the Jagadhri Light Railway in Punjab Province. Its total route mileage comprised 3⅓ miles of a 2-foot gage. Its gross earnings in the year 1943-44 were $8,787, which put it in Class III.

NO LESS than four different sizes of gage complicate the rail transportation system. They are: standard gage (5 feet 6 inches), meter gage (3 feet 3⅜ inches), and the narrow gages (2 feet and 2 feet 6 inches). The Bengal & Assam, the Bombay, Baroda & Central India and the Mysore State railways operate in three gages. Eight other roads make use of two gages. Route mileages of standard, meter and narrow gages are 20,673, 16,010, and 3827 miles respectively.

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During 1947 religio-political riots, Pakistan-bound trains were jammed inside and out with refugees from dreaded Hindu ire. Fleeing Moslems made use of every square inch of space, even riding buffers between European-type coaches

Though impractical, a trip from Calcutta to Siliguri in northern Bengal can be made traveling on all four gages. Exactly 399 miles would be covered and 51½ hours consumed. Over 27 hours of the time would be taken up by the seven changes of trains involved. Most of the trip would be made on 2½-foot, meter- and standard-gage trains of the Bengal & Assam Railway, while the last 70 miles would be over the Kishanganj Branch of the 2-foot-gage Darjeeling Himalayan. A much less exasperating trip between the two points can be made in 12 hours on the B&A's standard-gage *Darjeeling Mail.* This route is only 337 miles in length.

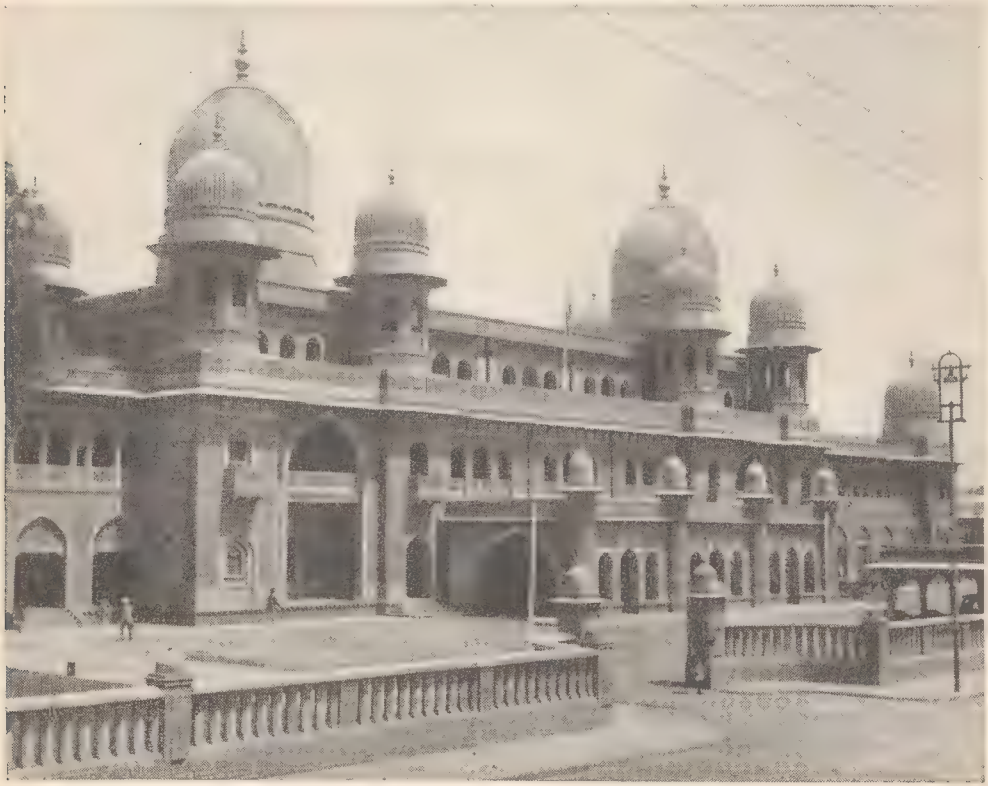
The great criticism of the variety of gages is, of course, the time and expense involved in transhipment of freight from cars of one gage to those of another. However, many areas not justifying construction of the original broad gage were opened up by the more economical meter and narrow gages. It has been suggested that the broad and meter gages be converted to the American and European standard. If this were done little change in the large rolling stock would be required and transhipping problems would be negligible.

Three factors led to the route pattern on the Indian railway map: the connection with the seaports of Bombay, Calcutta and Madras; the transportation and distribution of agricultural products from the plains lying along the Ganges River; and the danger of an invasion from the northwest.

Four of the Class I railways are owned by the Indian states of Hyderabad, Mysore, Bikaner and Jodhpur. The other nine are owned by the government of India. These do the greatest share of the hauling.

Cawnpur Station south of Lucknow, with its graceful arches and softly rounded domes looks more like the palace of a turbaned, jeweled and haremed maharajah than the business-like railroad terminal it is. Another respect in which its function belies its looks—there is a GIP railroad shop here

Indian State Railways



Allan D. Krieg

Lying over between trips in the Delhi running shed are two *Ten-Wheelers* of the East Indian Railways. Indian trains are moved by a hodgepodge of motive power from England, Europe, the U. S. and Canada; but if present hopes are realized, by 1955 native shops will be capable of producing 120 locomotives a year, or better

REPUBLIC OF INDIA

(Mileage open as of March 31, 1948)

Class 1 Railways:

1.	Assam Bengal	1,238.82
2.	Bengal Nagpur	3,388.02
3.	Bikaner State	883.05
4.	Bombay, Baroda and Central India	3,403.98
5.	East Indian	4,379.60
6.	Eastern Punjab	1,877.58
7.	Great Indian Peninsula	3,560.66
8.	Jodphur	1,125.69
9.	Madras and Southern Mahratta	2,938.47
10.	Mysore State	738.27
11.	Nizam's State	1,384.24
12.	Oudh Tirhut	3,073.26
13.	South Indian	2,349.25
		30,340.89

Class 11 Railways:

1.	Barsi Light	202.57
2.	Bhavnagar State	307.04
3.	Dajreeling Himalayan	146.51
4.	Gaekwar's Baroda State	736.38
5.	Gondal	213.49
6.	Jaipur State	253.47
7.	Jamnagar Dwarka	211.53
8.	Junagadh State	229.22
9.	Morvi	172.54
10.	Shahdara (Delhi)—Saharanpur Light	92.50
		2,565.25

The Bengal & Assam's 3460 miles of road serve the jute and tea districts of Assam and eastern Bengal provinces.

The 3375 miles of the Bengal Nagpur Railway connect the coal, manganese and iron ore country with the ports of Calcutta and Vizagapatam on the Bay of Bengal.

The Bombay, Baroda & Central India stretches northward from Bombay with 3400 miles of track through cotton-growing areas.

Central India and the Deccan are served by 3530 miles of the Great Indian Peninsula Railway.

From Calcutta the 4060 miles of the East Indian spread through the coal fields and fertile lands in Bengal, Bihar and the United Provinces.

One-third of the North Western's 6885 miles are strategic lines. It might be explained here that strategic lines are those constructed primarily because of military importance rather than as sources of revenue. This longest system in India

Allan D. Krieg

On a 3 foot, 3⅜-inch gage line invading the lush haunts of chattering monkey and stealthy serpent in the Assam jungle, a 2-6-2 tank engine in "banker" (helper) service. Coach between engine and "brake van" is 4-wheel saloon car

runs through the Punjab, North West Frontier, Sind and Baluchistan provinces.

Skirting the Nepalese frontier, the Oudh & Tirhut operates 2684 miles of meter gage through rich grain and sugar-cane districts.

The Madras & Southern Mahratta Railway reaches 2940 miles south and west of Vizagapatam through southern rice and cotton areas to Portugese West India.

In India's lower tip the South Indian handles much religious pilgrim traffic over 2348 miles and includes Pondicherry and Karaikkal which are French ports.

In and around Bombay the GIP and BB&CI have extensive suburban juice systems reaching out as far as 30 miles from the city's center. The two companies operate 91 three-unit trains over 81½ route miles. In 1944 their combined passenger miles totaled more than a billion miles—1,137,890,565 miles, to be exact. The South Indian has a similar system in the Madras area with 24 trains and 18 miles of meter-gage trackage. The GIP also operates 170 miles of electrified main line.

WIDE RIVERS, rugged mountains and thick jungles crossed by rails have enabled the country to claim a share in railway engineering triumphs. The hill lines are the most fascinating. Most of them are built in 2-foot and 2½-foot gages, adaptable to the sharp curves and confined spaces of mountain railroading. The Darjeeling Himalayan has grades as steep as 5 percent and in its 51-mile climb to the shadows of Mt. Everest negotiates five reverse grades and four loops, one of which has a radius of only 60 feet.

One encounters 103 tunnels on the important 59-mile Kalka Simla Railway which every year sees a great migration of the government of India staff from the heat of New Delhi to the summer capital at Simla, elevation 6840 feet. Here the Hindustan-Tibet trade route begins.

The Khyber Pass section of the North Western extends 28 miles as standard gage from Peshawar through savage territory to the frontier of Afghanistan. The builders of this section had to contend with resentful, lawless Pathani tribesmen while they pushed 32 tunnels through shale rock.

There is one rack railway in India. In the Nilgiri Mountains near the country's southern tip, the South Indian Railway has a 29-mile meter-gage branch of which 17 miles are operated on the Abt rack system. Grades up to 8 percent are attacked by the Swiss engines. Elsewhere in India, the only hill sections subjected to heavy traffic are those surmounting the Western Ghats on the GIP from Bombay.

The 2.4-mile Khojak Tunnel, longest in the country, is on the Quetta-Chaman Branch of the NWR which stops at the Baluchistan-Afghanistan border. Two bridges of note are the 10,052-foot Upper Sone Bridge on the EIR and the B&A's Hardinge Bridge, a 5894-foot, double-tracked structure across the Ganges. The foundations of the latter are sunk 150 feet below the low-water mark.

Each system contributes to the working of one great unit which has made India's iron pikes one of the largest commercial enterprises in the world. The activities of the rail carriers are directed by a central governing body, the Railway Board, a five-man group with headquarters in New Delhi. The chief commissioner of railways presides, assisted by a financial commissioner and three members usually recruited from the ranks of railway general managers. These men are in charge of engineering, personnel and traffic. There are also twelve directors who undertake the daily administration of various branches such as traffic, civil and mechanical engineering. The general manager of each system is responsible to the Railway Board for his road's operations.

With the nationalization of most of her railroads India has attempted to eliminate wasteful competition, to stabilize rates and fares and to improve engineering and mechanical methods and the services offered patrons, and to create a constructive policy of employe relations.

Allan D. Krieg

Meter gage shops at Saidpur on the B&A are big time in any rail's language. Dismantled engines on far track are American-built 2-8-2s. In center of picture is a *Beyer-Garratt* (European) articulated 2-8-2+2-8-2, with cylinders on tank instead of boiler section

THE LATE WAR brought many problems to Indian railroads which, despite a hindering loss of personnel to the armed forces and a lack of equipment, were met and adequately solved. Railroad officials also set to work on problems which were not theirs, and in so doing contributed more than their share to victory. Over 50,000 men were trained in trades for the military services and labor department by the railways. Then, too, 1400 miles of track went into military depots and airport sidings; 1200 miles of steel were sent overseas. Ambulance trains, armored cars and pontoons were built, and shells, bombs, grenades and bayonets produced, all in railway shops.

Railroaders struggled to meet a 70 percent increase in passenger miles with a 20 percent reduction in accommodations. Passenger-train consists were increased to eleven cars as compared with the normal eight. Passenger-engine mileages were stepped up to a monthly 4000 miles and freight hogs up to 10,000 miles. Carloadings were raised from 52 percent to 74 percent of car capacity. Conversion of some locomotives to oilburning power diverted precious coal to other essential industries.

With the Jap invasion of Burma, the Bengal & Assam assumed military importance which had previously centered on the North Western's strategic lines in Baluchistan and the North West Frontier. When the Japanese cut the vital Burma

Road, China's main supply line was the dangerous air trail across "The Hump" of the Himalayas. Only limited quantities of military freight could be transported this way and it was decided to reopen a land supply route to blockaded China. This resulted in the building of the Ledo-Stilwell Road which eventually connected with the Burma Road.

The construction of the road was started at Ledo, terminus of the Dibru Sadiya Railway, 34 miles from the end of the B&A meter-gage line. There was no through vehicular road from Calcutta to eastern Assam and the water route up the Brahmaputra River was tedious. Practically the whole task of moving men and material for the Ledo road, the Allied armies' operation in north and central Burma, and cargo for the Hump flights fell upon the Bengal & Assam.

Jap submarines in the Bay of Bengal virtually closed Calcutta as a port. Thus military supplies came cross-country from Bombay and Karachi over different lines and were transhipped to meter-gage cars of the Oudh & Tirhut rails and directed to Katihar where the B&A's western meter-gage branch begins.

When Calcutta was reopened to shipping the B&A had more traffic than could be handled. Shortage of power and cars

Indispensable element in railroading, whether occidental or oriental, is mechanical know-how, which, luckily for India's pikes, may exist beneath a grimy turban as well as under a visored cap

Allan D. Krieg

J. Lobrow

Above: Snake-charming snakes take it easy in an 11-ton boxcar, while ***O-Wheel Switcher*** (Mother Nature's Locomotive Works) does the honors at Bogapani on the B&A. ***Below:*** Like their roof-riding passengers, crews of Indian trains think nothing of riding on top. Squat wood-burner is motive power on the narrow gage Darjeeling-Himalayan Railroad

David K. Johnson

limited the number and length of trains. There was a lack of a good supervisory staff linking the management and operational staff. Leisurely operation resulted, tying up important freight. Story has it that now and then a crew would halt a train between stations to enjoy a pot of tea brewed with hot water from the boiler while cars of precious supplies were left sitting along the jungle rails, not a wheel turning.

Physical difficulties were presented by the slow handling of freight at the broad-to-meter-gage trans-shipping points at Parbatipur and Santahar, by the slow rail ferry across the Brahmaputra, and by a heavy grade between Lumding and Manipur Road. These made for shorter and slower trains. It usually took 30 days for a carload of military freight to reach Manipur Road, 634 miles from Calcutta.

Railway officials couldn't guarantee a 50 percent increase in tonnage required by military needs. Something had to be done. Something was done.

ON March 1, 1944, with the cooperation of the Indian government and the B&A, the Military Railway Service of the U.S. Army Transportation Corps assumed responsibility for operating the 802 miles of B&A meter-gage line between Parbatipur and Ledo. The American troops consisted of the 721st, 725th, 726th, 745th and 748th Railway Operating Battalions, each assigned a division; the 758th Railway Shop Battalion stationed at Dibrugarh; and the 705th Railway Grand Division, directing overall operations from Gauhati. It was not the Army's intention to operate the line single-handed. The ratio between B&A employes and GIs was about three to one. British and Indian railway troops were also assigned to the road. The soldier-railroaders speeded up operations and increased capacities, cutting the shipping time for a military carload from Calcutta to Manipur Road to one week.

The bottlenecks were attacked immediately. When the MRS took over, the B&A had already acquired 90 *Mikados* under the lend-lease program. These engines, developing a 20,100-pound tractive force, were more powerful than any other locomotives on the line, with the exception of the Beyer-Garratts in service on the hill section. By the war's end there were 262 *Mikes* on the B&A.

All equipment was pressed into service. The shortage of a switch engine at one station, far up in Assam, was relieved with an 80-year-old elephant. This shuffling gray giant shunted four or five cars around the yard with ease. At other small yards gangs of coolies moved cars.

Most of the meter-gage freight cars, or "wagons" as they're called over there, are 4-wheel steel boxcars of 11-ton capacity. Soon there were 14,000 American-built wooden 8-wheel boxcars, gons and flats—with capacities up to 27 tons—in use. Forty-six boxcars were rebuilt as reefers for carrying fresh meat to forward-area troops. Freight-car parts were received at Karachi and assembled nearby on the Jodhpur Railway, a 3-foot 3⅜-inch line, and from there rolled on to the B&A. Disassembled locomotives were shipped over standard-gage roads on heavy flats to shops at Saidpur and there reassembled.

The personnel and supervisory problems were met by placing GIs as station crews along the line, as train crews, dispatchers, roundhouse foremen and machinists, storekeepers and in a multitude of other posts. The Americans had to learn Indian operating rules and signals. Some informal international exchange was made apparently, for now and then one saw an Indian switchman using American hand signals.

Prior to the time the MRS assumed operation there were four to six eastbound trains per day over one division. By January 1945 that same division was handling 35 trains eastbound every day. At the broad-to-meter-gage trans-shipment points a 24-hour application of muscle and machine raised carload figures 88 percent.

Original plans called for double-tracking of the entire line, but after important sections totaling 165 miles had been doubled, it was found that the planned traffic could be handled. The line is broken by the Brahmaputra River between Pandu and Amingaon. Passengers ferry across the river from one station to waiting trains at the other point. Freight cars are switched into yards where they wait to make the trip on rail ferries.

The two ferry *ghats* on either side of the river handled an average of 240 eastbound 4-wheelers a day in January 1944 (the 8-wheel cars were counted as two cars). Experts decided that a proposed bridge at that point would be too long under construction to meet the Allies' urgent needs. Instead they increased the number of ferry *ghats* on each side to four and installed powerful floodlights to aid night movements. They speeded up loading and unloading of ferries by using two switch engines working in relays instead of a single goat at each installation. Watering time of the switchers was cut from one hour to twenty minutes; coaling, which had been done by hand in one hour, was reduced to fifteen minutes by using power cranes with clamshell buckets.

After a month 327 eastbound cars a day were crossing the muddy river and by February '45 that figure was raised to 791. Owing to the nature of the shoreline and the seasonal 35-foot rise and fall of the river, conventional ferry slips cannot be used. The cars must be loaded across the decks. The levels of the ramp tracks leading from the yards to the ferry landings must be changed several times throughout the year.

Allan D. Krieg

Today 98.4 percent of all peninsular railroaders are all-Indian, where formerly most responsible railroad positions were held by Europeans or by Anglo-Indians, like the hogger above. For better vision his engine is reversed downhill on the Kalka-Simla Branch of the NWR

Traffic between Lumding and Manipur Road through the Naga Hills was accelerated with double-tracking and heavier motive power. One of the Japs' primary aims during their invasion of India was to cut the railway so important to the Allies, and they came dangerously close to doing it. In April '44 the enemy was within ten miles of the line at Manipur Road. Motor-car patrols operated constantly along this section. Traffic, however, was not reduced; in fact, 64 extra troop trains were handled during the period.

That is the story of the gearing-up of a line which served the Assam tea gardens in peacetime to serve the United Nations in wartime. No doubt Indian railroaders with whom GIs came in contact learned about hurry-up railroading.

Allan D. Krieg

A slack day on the slim gage Shadara-Saharanpur's No. 4 *down*; ordinarily there would be passengers on top as well as inside the little 4-wheelers

IF ALL the people who travel by rail in India could be accounted for, the passenger-mile figures in the yearly government reports would be much greater. Long a thorn in the side of passenger departments has been the ticketless travel. Between January and June 1949 more than 32 million persons rode Indian trains illegally, from whom magistrates later collected over 9 million rupees. The exact number of persons who get away with traveling without purchasing tickets or with improper tickets—despite the increased employment of railway guards and magistrates—cannot even be guessed.

The GIP alone has dealt with 275,646 violators and recovered $178,303 in twelve months' time. Besides those passengers apprehended, 136,197 ticketless religious mendicants—who could not be prosecuted—were turned out of railway premises and removed from trains. Several railways have made use of special ticket-examining squads which appear suddenly, unannounced, at stations to check on passengers and employes. On the North Western, traveling magistrates have been appointed to deal with violators on the spot.

The majority of those uncovered and prosecuted have paid up. The main reason for this trouble lies in the construction of the coaches which are built without corridors. Although affording privacy and safety, this means that tickets can be checked only when the train is stopped and examiners can proceed from one compartment to another.

In the early days of Indian railroading the responsible positions were held by men recruited from Great Britain or by Anglo-Indians. Today, 98.4 percent of all railroaders are Indians. Only 1760 Europeans occupy railway posts. At every railroad center living quarters of red brick and tile are to be seen, established by the railroads. An efficient retirement plan is also in operation.

A high degree of illiteracy and some twelve major language differences

throughout the country serve to reduce the element of safe train operation. Train movements have been made as foolproof as possible. On most lines the token system which allows only one train in one block at one time is in use.

The war left the railways with much overused equipment. With the exception of the meter-gage freight cars and *Mikado*-type engines, plus 275 5½-foot-gage 2-8-2s from the U. S. and Canada, practically no new equipment had gone into service. Early postwar reports listed 8345 locomotives of all gages, in addition to 118 suburban electric motor units, 76 Diesel- or gasoline-propelled motor units and 28 steam railcars. An idea of the type of motive power used on standard-gage lines of India in 1946 could be formed by a quick survey of the locomotive diagram book for the North Western in the chief mechanical engineer's office at Lahore. The older engines are BESA (British Engineering Standards Association) designs, while the latest follow the Indian Railway Standards although built in Europe. Many non-standard types also exist.

The North Western drivers (hoggers) handled 1056 road engines on the broad-gage lines. Over two-thirds of this number were in freight service. Ninety-six little locomotives rolled on 2½-foot branches. Heavy passenger power consisted of 96 *Pacifics* varying from 121 to 175 tons in working order with tractive efforts from 20,957 pounds to 46,389 pounds. The most up-to-date of these were four of the XS class, 4-cylinder engines weighing 196 tons.

These "pride of the line" jobs were 79½ feet long, 14½ feet high, with 74-inch drivers. They operated at 200-pound boiler pressure, had a 16x26-inch bore and stroke, and developed 36,582-pound tractive force. Two were equipped with Caprotti valve gear and two with Lents valves. The XSs were used on the

Accommodations for a nabob. If you don't care to ride on the roof of a boxcar—and if you have the rupees—you can hire a rolling hotel for your journey, complete with sleeping section, galley and servants' quarters

Indian State Railways

Gone are the days when the British viceroy and vicerene traveled in whole trains of luxurious cars like the GIP 12-wheeler above

Delhi-Lahore run of the *Frontier Mail,* and typical of the British school of design, they displayed few external fittings. Vacuum brakes were standard.

Another type, popular on the NWR for light passenger service, was the XT class. Of 0-4-2 wheel arrangement, these were 46-ton sidetank engines with 30-foot 3-inch length and 13 feet 2 inches high. They were equipped with Caprotti valve systems, had 51-inch drivers, and at 210-pound boiler pressure exerted a tractive force of 11,088 pounds. They were built by Krupp.

Ranging between the heavy XSs and the light XTs were some 280 engines of 4-4-2, 4-6-0 and 4-4-0 types pulling passenger trains. *Decapods* were the heavy haulers for goods traffic. As oil-burners, 30 of the N/1 class operated on the line from Quetta to Zahidan, Iran. Their tractive effort was 56,324 pounds, driver diameter 56 inches and weight 195 tons. The bulk of the freight engines were 458 of the SG class, peculiar with their inside cylinders.

On the slim-gage section which follows the Zhob River in Baluchistan Province, two Kitson-Meyer articulated tank engines might be seen. The boilers, tanks and fuel bunkers were on a rigid frame mounted over two 2-6-2 driving trucks. On a 4 percent grade these odd-looking little giants were capable of handling a 130-ton drag at 10 miles an hour. They weighed 68½ tons, had 13½x14-inch cylinders and 30-inch drivers.

The Bengal Nagpur Railway used Beyer-Garratts for its heavy ore trains. The 2-8-2+2-8-2 Garratts were also used on the meter-gage sections of the B&A in mountainous central Assam.

ROLLING-STOCK designs of the North Western were typical of the 212,424 freight cars and 23,327 coaches rolling over Indian steel in 1946. The most often seen boxcar model was the IRS type CR, a four-wheeler 27 feet 8 inches long and 10 feet wide. Its wheelbase was 15 feet and gross weight 37 tons. Comparable to our American boxcars was the 8-wheel bogie. Its length of 49 feet 2 inches and gross weight of 71 tons brought it closer to U. S. standards. A standard 4-wheel tank car had a liquid capacity of 5344 gallons.

Despite recent new purchases Indian passenger coaches in general do not offer the best in comfort. There are a few airconditioned cars but corridors and vestibules are still practically unknown. You bring your own bedding for there is no Pullman service. Porters are not at your beck and call; your personal servants ride in a cubicle at the end of the coach. Some trains carry a restaurant car but most meals are taken in the refreshment rooms of large stations at scheduled stops.

The North Western's coaching stock covers types from all-first-class to all-third-class cars with a few cars compartmented for each of the four classes of

Keystone Pictures

Currently the Indian Government is buying hundreds of locomotives like the one above, on display in George Square, Glasgow. But the day is approaching when the new nation will be self sufficient as to rolling stock, motive power and other needs of all-important railroading

travel; a postwar experiment in three-class travel failed and was discontinued. The first-class "carriage," besides the little coop for servants, has two four-berth compartments and three coupe spaces with an upper and lower in each. All compartments are provided with lavatory facilities. The coach is 72 feet 2 inches long, and space is limited to 28 passengers by day and 14 at night.

On the other end of the scale, the 71-foot, third-class coach seats 122 persons on wooden benches. Such coaches are seemingly filled to overcapacity when the train leaves a large station like the Victoria Terminus in Bombay. Passengers at outlying stops, who find doors closed to them, merely push their baggage in through a convenient window and clamber in after it. In 1946, when traffic reached a high peak and equipment was at a new low, as often as not the other crowded occupants tossed the invaders' luggage out the car windows on the other side.

Most trains have some compartments reserved for lady travelers. Such a compartment is identified for illiterate passengers—95 percent of the Indian population is classed thus—by a picture near the door showing an Indian woman wearing a *saree*.

Accommodations and fares are divided into four classes: first, second, intermediate and third. A comparison of the fares for the 1223-mile trip from Bombay to Calcutta might be interesting: in 1946 American values they ran $38.70, $19.35, $11.80 and $5.95. Travel in first- and second-class compartments is reasonably comfortable and these are the accommodations most used by Europeans.

Religious customs demand that the Indian travel to holy places. The Indians, except for a minute percentage, are unbelievably poor and consequently 95 percent of the passengers have always traveled third class. Of course if one is a rajah and desires to travel in style and privacy, it is possible to hire one of about 150 private saloon carriages owned by the Class I railways. Some of these are comfortable little four-wheelers and a few are lavishly appointed standard-size coaches.

BB&CI saloon No. 22 is an 8-wheeled coach, 40 feet in length, that sleeps four people in two compartments. The larger compartment housing two beds, chairs, a desk and dining table is fitted with glare-reducing windows on two sides and across one end. Along the side corridor running to the smaller coupe-type room at the opposite end of the car is a tile bathroom with a tub and shower. The kitchen comes next with a small coal stove and sink. In the adjoining compartment bunks for the cook and bearer vie for space with the icebox.

Class I lines also own about a hundred saloons reserved for royal and state dignitaries. In northern Indian cities—once the seat of British officialdom—the NWR had in storage fourteen such private cars; but because this railway is now controlled by West Pakistan, the present status of this plush equipment is not known. However, topping all private cars' splendor in the old days was the luxurious viceregal train.

This eleven-car rolling symbol of the British *raj* was painted in glistening white and carried governor generals and their parties throughout India on state occasions from 1903, when it was built in the East Indian Railway shops, until the withdrawal of English rulers in June 1948. His Excellency and the Vicerene each had a car to himself, while coaches sheltered lounges, offices, staff and servant sleeping quarters, a post office, galleys, dispensary and storerooms. The private car carrying the general manager of the particular line over which the special was moving was also part of the train. The consist often varied with the situation or the demands of His Excellency. Lord Linlithgow, when viceroy, often used up to seventeen cars during his travels, while Lord Wavell cut his train down to eight coaches. Utmost precaution was exercised along route and the position of the special was always a secret, for security reasons.

Allan D. Krieg

Looking to American eyes like something dreamed up by a locomotive designer with a split personality, the *Beyer-Garratt* 2-8-2+2-8-2 is actually a powerful articulated engine. This one takes a freight drag out of Lumding on the hilly meter gage line to Chittagong

THE WITHDRAWAL of Great Britain from the government of India during the summer of 1948 was a milestone in Indian railroad history. And like India herself the railways of India still bear the marks of this separation. The leavetaking had its bitter consequences, unfortunately, following as it did the partitioning of India into two rival nations: India and Pakistan. The announcement of partition brought on civil war between the Hindus and Moslems, a feud that has not yet come to an end.

To India proper, the cutting off of 250,000 square miles of East and West Pakistan aggravated religious, political and economic problems which had to be solved without delay were the new republic to succeed as its founders were determined it must. From a railroad point of view partition meant the loss of about 6000 miles of route mileage, the loss of badly needed equipment and power, and the isolation of Assam, north Bengal and other state railways. *(See table of route miles, p. 33, for listing of Class I and Class II railways now in the domain of the Republic of India.)* Because new India could not afford to lose the trade of Assam, its railway commission chose as its most ambitious post-partition project the building of the 145-mile Assam Rail Link, which was opened to goods traffic on December 9, 1949 and to passenger traffic the following January 26th. India's enthusiasm for industrialization and construction is witnessed by the fact that this line was opened two and a half years ahead of schedule.

Other changes within the railway system itself—if so many separate railways can be classified as one system—come under the general headings of improvement to roadbed and equipment, increases in train service, better relations between management and labor (recently grown union-conscious), and last and perhaps most important the industry's long-view planning. Underlying all programs is the belief that India must learn to use its new-found independence economically as well as politically. One outstanding result of this policy is the establishment of a locomotive factory at Chittaranjan.

Under an Anglo-Indian agreement, the Locomotive Manufacturers of Great Britain are to furnish this factory with advice, technicians and the supervisory staff necessary to set up a modern locomotive plant. There native craftsmen will be taught how to use modern techniques and implements, so that eventually India will be self-sufficient when it comes to stocking her railroads with engine and train equipment. The trade pact is in the nature of a five-year plan, which means a

Allan D. Krieg

Indian yard goat 0-6-2 tank engine is one of a class built for peninsular railways by British Vulcan Foundry. Four of these are in service on the North Western

heavy investment now with a promise of future dividends. Production charts call for the erection of only three locomotives this year, 33 next year, 45 in 1952, 66 in 1953 and 90 in 1954. Beginning in 1955 English engineers figure that India will be able to carry the entire burden of its own needs—approximately 120 locomotives annually—and that the plant itself can later be tooled for a capacity of 220 engines per year.

Meanwhile the Indian government is receiving delivery of hundreds of engines purchased mainly in the U. S., Canada and England. In November 1949 Indian officials announced that they had distributed $34 million in orders for 418 locomotives, 26 boilers and spare parts to be shipped to India sometime during 1950. The high commissioner's 1950 budget—curtailed though it was by higher government powers—allowed for the replacement of 35 locomotives, 160 boilers, 407 coaches and 1016 wagons.

Another investment in plant, equally as significant as Chittaranjan's locomotive shops as to what lies ahead for India's

Proud, tall-drivered *Pacific*, British-built, is first-class passenger power for Class I railroad, Bengal Nagpur, with over 3000 miles of trackage

Indian State Railways

railroads, is the construction of a factory for all-steel welded coaches. Under ownership and direction of Switzerland's Schlieren car builders, the plant at Bangalore will sizably increase the local output of railways cars, cars that are desperately needed since war operations destroyed old equipment. This factory will also guarantee industrial jobs for Indian workers. Once an importer of Swiss models, India hopes to produce these domestically of Indian steel, Indian craftsmanship and other home products. With Tat—India's great steelmakers—now operating the Singbhum shops, there may even be room for rivalry on the home front in the not-too-distant future.

Apart from what the future may mean to India's iron pikes—and since 1947 "India" is defined as the sub-continent of India minus Pakistan East and West —their present task of hauling 100 million passengers and 9.3 million tons of freight per month, the 1949 average, is no second-rate occupation. In 1948 Indian railways carted twice the volume of traffic handled in 1939, while equipment was 14.5 percent less adequate than that during the earlier period. Comparison of these two years would not be complete without mention of the 30 percent increase in employment and the accompanying 300 percent go-up in annual wages. Yet in spite of rising costs, the upward trend in revenues has been maintained.

Whatever they lost due to partition, India's iron pikes have made tremendous strides since the close of World War II and the declaration of a free India. The key to heavy government investments in new line, new equipment and new services is the value of the railroads to India's potentially wealthy provinces: without an efficient transportation system the Republic of India cannot hope to establish a sound economy. Industrialization depends upon the easy movement of raw materials to manufacturing centers and then the swift transfer of goods to market. Thus the future success of Indian manufacturing and Indian railroads lies in corporate activity.

Yet the individual ticketholder knows and cares little about these national schemes. To him a new train is a great discovery, as are such rare comforts as electric fans, bright lights and water coolers that don't run dry. Happily for him these pleasures are growing more and more numerous, especially near large terminals like Bombay, Delhi, Hyderabad, Madras and Calcutta.

Behind cowcatcher for sacred cows, Bengal Nagpur's *Madras Mail* highballs out of Khargpur on leg of 40-hour run from Calcutta to Madras

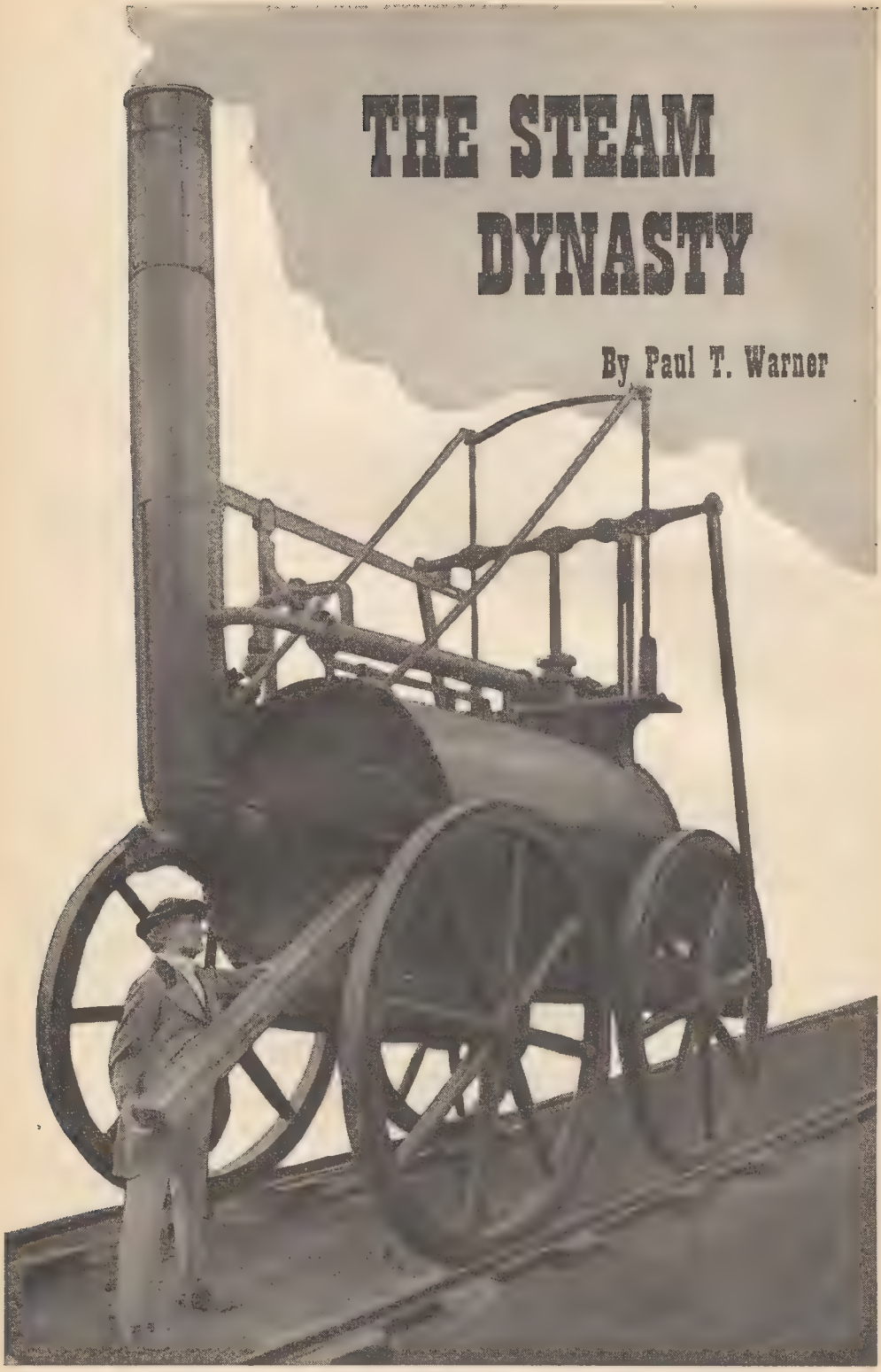
David K. Johnson

BACK IN THE DAYS.....Harry Temple

"Not a creature was stirring, not even a bug . . ."

THE STEAM DYNASTY

By Paul T. Warner



110 Years of Locomotive Development

THERE seems to be no doubt about the fact that the reciprocating steam locomotive is on the way out—at least in the United States. For well over 100 years it has made a remarkable record, and has been brought to a high state of efficiency and reliability; but present-day demands are forcing it into the background, and it is gradually being replaced by other types of power having higher availability and thermal efficiency. But in the field of transportation no device has a more notable record or has been of greater benefit to mankind.

In view of the fact that the reciprocating steam locomotive has apparently reached its zenith, this would seem an appropriate time to tell the story of its development. It is not a new story; but by dividing it into ten-year periods, and considering the principal events of each, it can be presented in a new way.

Although there were a few locomotives in service in the United States prior to 1831, that year may well be taken as the start of our historical review. The events of the decade 1831-1840 will, therefore, be our first consideration.

1831-1840

THE FEW locomotives in use at the beginning of this period all had one feature in common—they were of the 4-wheeled type, with two axles which were rigidly held in the frames, so that they lacked the "flexibility" required in a locomotive operating on crooked, uneven tracks. In Great Britain, where the first railroads were substantially built, with few sharp curves, this was not a serious disadvantage; but in this country, where railroads had to be cheaply built, with light tracks and many curves, to save expense, the deficiencies of the four-wheeled, rigid frame type, were evident. The problem was to provide the necessary flexibility, and the adoption of the swiveling truck was the answer.

The truck was really of English origin. It was invented in 1812 by a certain William Chapman, and was covered by *British Patent No. 3632.* Whether it was actually applied to a locomotive at that time is uncertain, but there appears to be no doubt that, in 1831, there were no locomotives in England with swiveling trucks, and it was many years later before the device came into general use in that country. Its first application in America came in 1832, when John B. Jervis, Chief Engineer of the Mohawk & Hudson Railroad, designed a truck which was applied to the locomotive *Brother Jonathan,* built at the West Point Foundry, in New York City. Shortly thereafter, Ross Winans, who later made a name for himself as a locomotive builder in Baltimore, applied a truck of his own design to an English-built locomotive on the Baltimore & Susquehanna Railroad. Whether Jervis and Winans knew of the Chapman patent cannot be determined at this day, but certain it is that they were the first to apply one of the greatest improvements ever made in the design of the American locomotive. The truck was not patented in this country, and other builders soon adopted it.

Early in 1832 the South Carolina Rail-

International News Photo

Wm. T. James entered this engine in B&O's 1832 contest. Although its poorly designed boiler exploded, it was noteworthy as first locomotive to employ double eccentrics and links

road placed in service a locomotive of the 2-2+2-2 type, carried on two steam-driven trucks, which was really a forerunner of the articulated types that were developed many years later. This locomotive was designed by Horatio Allen. While it represented much ingenuity, it was not particularly successful, as was the truck invented by Jervis.

Those early swiveling trucks, while they rotated about a center pin, were actually side-bearing, the weight being transferred from the main frame of the locomotive to the truck frame either by means of rollers, or by mounting the springs on lubricated bearings which could slide on the truck frame. The first trucks of the center-bearing type were applied to two locomotives built in 1835 by Coleman Sellers and Sons, of Philadelphia, for the Pennsylvania State Road. These locomotives were of the 4-2-0 type, so that, with a center bearing truck and one driving spring on each side, the frame or chassis had three points of support. Another notable feature was the

use of counterweights in the driving wheels—a basic improvement of the greatest importance, which did not come into general use until some years later, but which undoubtedly made its first appearance in the Sellers locomotives.*

In 1836 appeared the first 4-4-0 or *American* Type locomotive, built by James Brooks of Philadelphia, under a patent granted to Henry R. Campbell. This engine had a side-bearing front truck, and its four driving springs were directly connected to the main frame, which therefore had six points of support, resulting in a very rough-riding engine. Joseph Harrison, Jr., a foreman in the employ of Garrett & Eastwick, who were

* *A most interesting account of the building of these locomotives is to be found in a series of articles entitled "Early Engineering Reminiscences", by George Escol Sellers, which appeared in the* American Machinist *in 1884-1886.*

Below: **Braithwaite & Co. of London built first Philadelphia & Reading engine in 1838. Its inside-connected drivers were independently sprung**

International News Photo

building locomotives and machinery in Philadelphia, undertook to remedy this defect; and he did so in 1838, when he patented what later became known as the equalizing beam *(U. S. Patent No. 706)*. Harrison hung the main frame of the locomotive, on each side, from the middle point of a "vibrating beam", the ends of which were supported by pins resting on the driving boxes. In this way he obtained a three-point suspension in a locomotive having coupled drivers, and this marked another basic improvement of the greatest importance in the development of the locomotive.

To sum up: The locomotives of 1831 had rigid wheel bases with no guiding trucks, no equalization and no counter-

Precurser of the articulated locomotive, Horatio Allen's *South Carolina* had hinged frames and four boiler barrels, all sharing a common firebox. Steam from each of two smokeboxes was fed to a single inside cylinder whose power was applied to a driving axle crank; a ball joint on the connecting rod taking care of frame angling

International News Photo

weights to promote steady riding; a design allowing little possibility of providing increased power and speed. The best locomotives of 1840, however, had swivelling trucks, coupled drivers, and three-point suspension, opening the way to a great increase in capacity and speed; and a beginning had been made in the use of counterweighted driving wheels. No other ten-year period can record such a remarkable advance in locomotive development.

1841-1850

DURING the fifth decade of the nineteenth century, heavy freight locomotives set the pace in the development of American motive power. Matthias W. Baldwin of Philadelphia, who had been building single-driver locomotives and who realized the prospect of being outdistanced by some of his competitors, devised his "flexible beam truck", which was patented in 1842, and which enabled

Left: **Coleman Sellers & Son introduced the bar frame to American practice but Norris popularized it on engines like the B&O's *Lafayette*, built in 1837. Easy to forge, this form of carriage gave ready access to operating parts. *Right:* The *Brother Jonathan*, designed by Jervis and built in 1832, was tailored for small radius-curves and irregular track of American roads through application of a bogie truck. Her Mohawk & Hudson engineer claimed that on occasions she made fourteen miles in thirteen minutes, with one stop for water!**

International News Photo

Big power, big trains, big profits, reasoned Ross Winans and his ***Camels*** were the "Big Boys" of their day. By 1863 the B&O had 120 of them in service—ungainly, cumbersome machines, equipped in the case of the "long furnaces," with two firedoors, one breaking through the sloping crown sheet to reach the forward corners of the grate

him to build locomotives with three or four pairs of coupled wheels, combined with a wheelbase sufficiently flexible for work on sharp curves. The first and second axles were held in place by a pair of vibrating beams, so arranged that the axles could move laterally across the track—the one to the right and the other to the left, or vice versa. To accomplish this, the crank pins were made spherical, and the coupling rod brasses were bored out to correspond. The idea was certainly ingenious, and it served the purpose remarkably well; and it was through the sale of the flexible-beam truck locomotives that the Baldwin fortune was founded. The first eight-coupled (0-8-0) locomotives of this type were built for the Philadelphia & Reading Railroad in 1846; and the *Atlas* and *Hercules,* specially designed for pushing service on the Falls Grade near Philadelphia, were among the most powerful locomotives of their day. For a period of about 15 years the flexible beam engines were built in large numbers, but by the close of the Civil War they had been replaced, in new construction, by more modern types of power.

Another noted builder of big freight engines was Ross Winans, of Baltimore. His first eight-coupled locomotives were driven through gearing, and the best known were the "mud diggers" on the Baltimore & Ohio. Subsequent designs showed improvement, and finally the famous *"Camels"* appeared, first built for the B. & O. in 1848, and turned out in considerable numbers during the succeeding ten years. The *Camels* had four pairs of drivers, which were only 43 inches in diameter, and were compactly grouped on the shortest possible wheel base. To assist in curving, the second and third pairs of wheels had no flanges. The cab was set over the middle of the boiler, which had a long overhanging firebox placed back of the rear driving axle. A volume might be written about these curious engines; all their unusual features were covered by patents, and from end to end and top to bottom they differed from conventional design. Their best feature was a boiler of generous size, with a large firebox suitable for coal burning; but they lacked flexibility, and were hard on the track and difficult to maintain.

The B. & O. was the most extensive user of the *Camels,* but they were built in considerable numbers for the Pennsylvania, the Philadelphia & Reading, and other roads. Many were extensively rebuilt before they finally disappeared.

Another notable type to appear during the 1841-1850 period was the *Ten-wheeler,* or 4-6-0. The first of these was the *Chesapeake,* built by the Norris Locomotive Works in 1847, for the Philadel-

phia & Reading, in accordance with a patent granted to Septimus Norris. The front truck was applied for guiding purposes only, and carried comparatively little weight; but the *Chesapeake* established a wheel arrangement which soon became popular in freight, and also, to a limited extent, in passenger service.

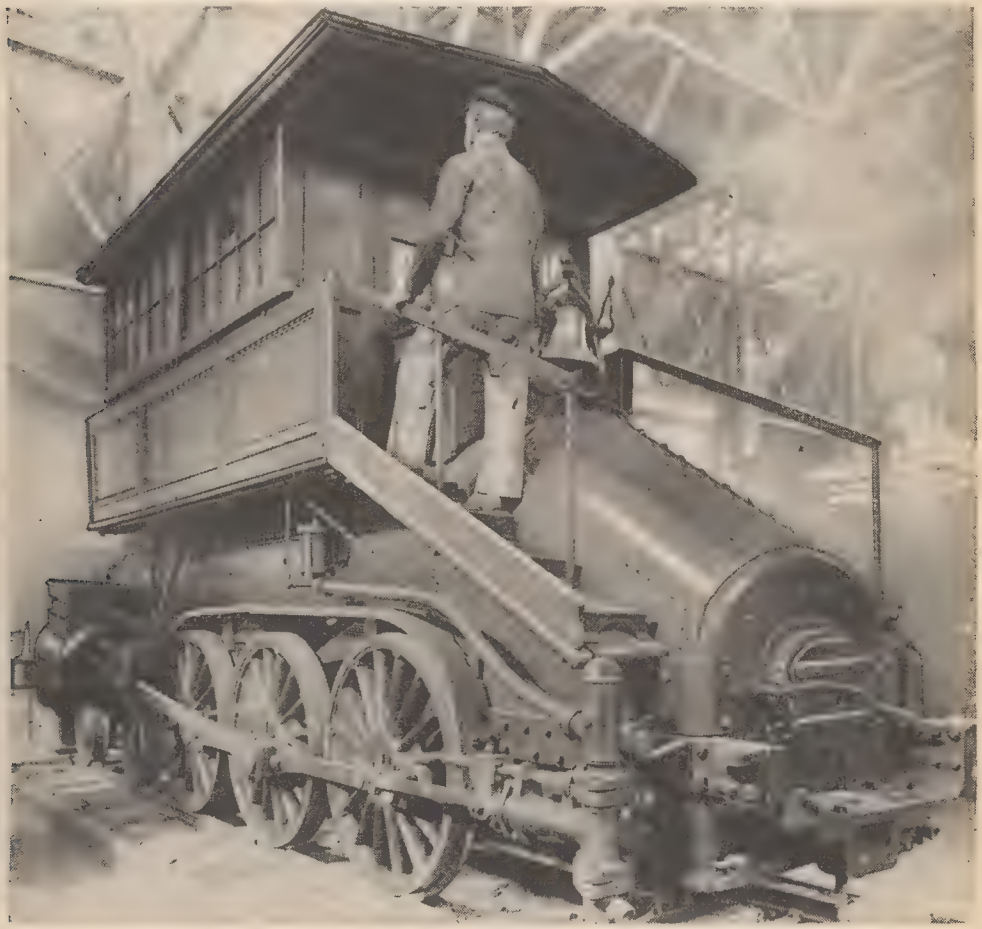
Several fast passenger locomotives of unusual design appeared toward the close of the decade, but they exerted little influence on future locomotive development and will not be described here.

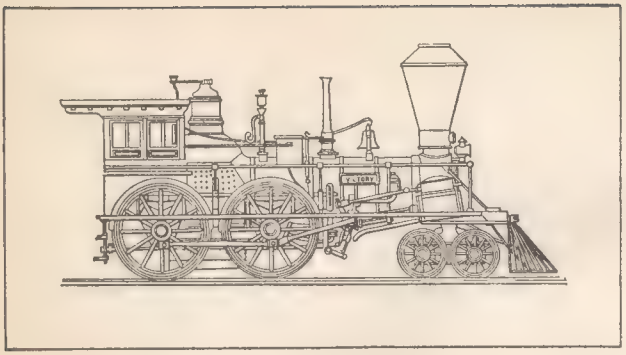
1851-1860

THIS PERIOD was characterized, not so much by the appearance of new types, as by the improvement of existing ones. Probably the first detail claiming attention is the valve gear. An amazing variety of contraptions for controlling steam distribution had come into use, but during the sixth decade they were practically all discarded in favor of the Stephenson link motion. This device had actually been invented by William T. James, of New York, in 1832, and had been applied by him to a little locomotive built for the Baltimore & Ohio Railroad; but the boiler exploded before the value of the motion was really demonstrated. Ten years later, it was re-invented by one William Williams, a mechanic in the employ of Robert Stephenson & Co. of Newcastle, England, and was soon being extensively

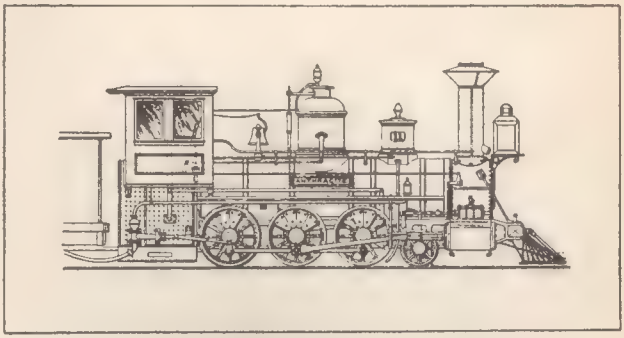
Hayes *10-Wheelers* (1853-'54) reflected the Winans' influence. Designed for passenger service on heavy grades, they employed a four-wheel leading truck. First and second sets of drivers were blind

International News Photo





Although William James devised the link motion he failed to recognize its worth and discarded it for another and less practical valve arrangement on later engines. Only after it had been re-invented by a British machinist was it introduced to American practice (1849) by Thomas Rogers. The locomotive was the *Victory*. *Opposite page:* Inclined cylinders allowed main rods of B&O's *Dragon* to clear externally-mounted side rods



Combustion-conscious Zerah Colburn moved the conventional firebox from its position between the driving wheels to one behind them, permitting grates to overhang the rails. Lackawanna's *Anthracite* (1854) was the first example; to overcome the tail-heavy lateral which it set up, John Wootten hoisted his own firebox design to a position above the wheels

used on the British railways. In 1849 the Rogers Locomotive Works applied the link motion to a 4-4-0 type locomotive named *Victory*. Its actual introduction in this country was therefore prior to the period we are now considering, but it was not until the middle fifties that its use became general. It was a remarkable improvement as compared to the complex and often inefficient devices that had preceded it.

Locomotive development during the fifties received a decided impetus due to the work of William Mason, who started building locomotives at Taunton, Massachusetts, in 1852. He was not only an excellent mechanic, but he also had an eye for beauty; and such details as cabs, sandboxes and dome casings showed a marked improvement in appearance as he designed them. Instead of fastening the cylinders to a flat-sided smokebox, as had been the general practice, Mason used a cylindrical smokebox, which was seated on a substantial saddle, to the sides of which—and also to the frames—the cylinders were securely bolted. With widespread truck wheels, horizontal cylinders, an efficient link motion valve gear, and carefully designed details, Mason turned out 4-4-0 (or *American* type) locomotives which set the pace for other builders. M. N. Forney, author of the famous "Catechism of the Locomotive", described the Mason engines as "melodies cast and wrought in metal".

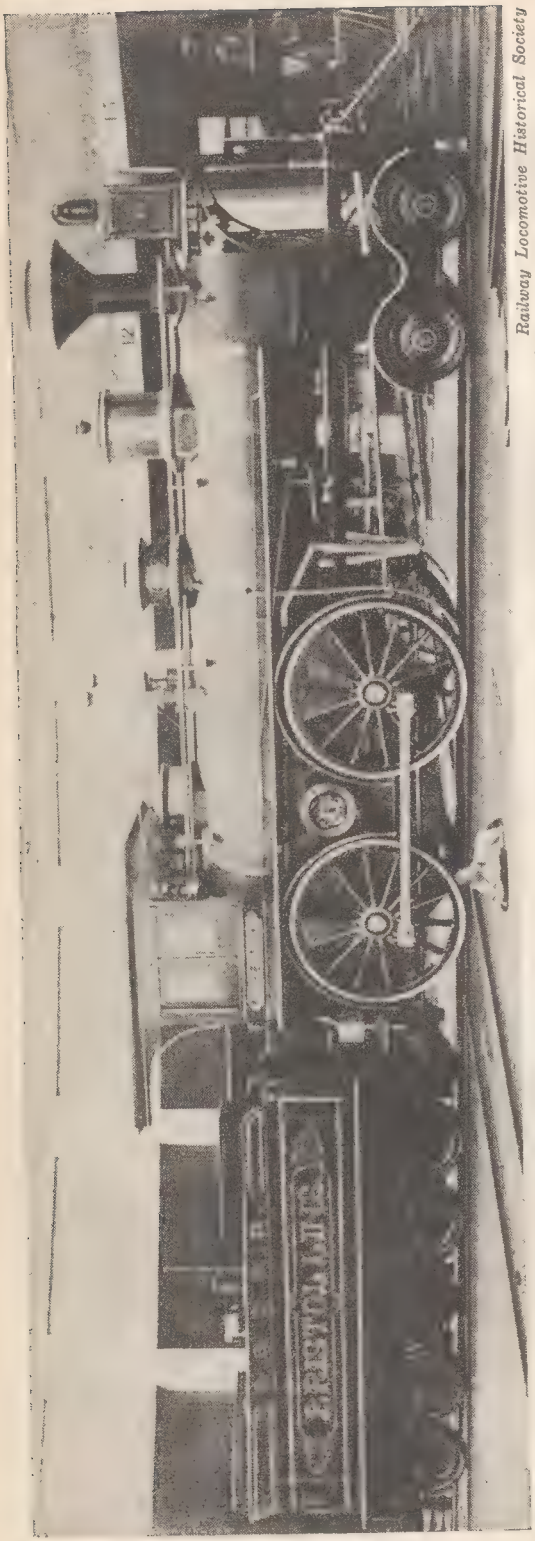
Another designer and builder of locomotives who acquired a fine reputation during the fifties was James Millholland, Master of Machinery of the Philadelphia & Reading Railroad. He tackled the problem of burning anthracite, or hard coal; and after considerable experimenting, and the making of some mistakes, succeeded in turning out hard coal-burners which were models of efficiency. He was the first to put the firebox on top of the frames in order to obtain increased grate area. Zerah Colburn was also struggling with the problem of burning hard coal, and he designed some six-coupled freight engines for the Lackawanna road, in which the firebox was placed entirely behind the drivers and was made wider than the track gage. Experiments with bituminous coal were also under way, notably

on the Pennsylvania Railroad. The coal-burning tests of the period proved conclusively that comparatively simple boiler designs were more efficient than the amazing combinations of combustion chambers, baffle walls, air jets and other gadgets produced by persons who may have had some theoretical knowledge, but were without practical experience in running and firing a locomotive.

1861-1870

THIS DECADE included the Civil War years, and is of special interest because it marked the introduction of three new types for freight service—the *Mogul* (2-6-0), *Consolidation* (2-8-0), and *Decapod* (2-10-0). Locomotives with three pairs of drivers and a single pair of leading wheels had been built before,

International News Photo



Railway Locomotive Historical Society

Inside cylinders of Boston & Providence's *Judge Warren* (1868) cut nosing to a minimum

but the first true *Mogul* with the front truck equalized with the leading drivers was built by the Rogers Locomotive Works of Paterson, New Jersey, in 1864, for the New Jersey Railroad & Transportation Co. The forward equalizing beam was placed on the center line of the engine with its fulcrum under the cylinder saddle casting, in accordance with a patent granted to William S. Hudson, Superintendent of the Rogers Works. The locomotive *Consolidation,* with four pairs of drivers, built by Baldwin for the Lehigh & Mahanoy Railroad in 1866, was arranged in the same way. This famous engine was designed in accordance with specifications drawn up by Alexander Mitchell, Master Mechanic of the L. & M. It was Baldwin construction number 1500, and was built at the time when the Lehigh & Mahanoy was being consolidated with the Lehigh Valley; hence its unusual name. It established a type which soon came into extensive use in heavy freight service, especially on steep grades, and which is still to be found on railways the world over.

The *Decapod* type, with five pairs of drivers, was a direct development of the *Consolidation,* and was first built for the Lehigh Valley by the Norris Works in Lancaster, Pa., in 1867, when two locomotives—the *Ant* and the *Bee*—were constructed. With their long rigid wheelbases they did not prove entirely suitable for the many curves on the line, and they were subsequently extensively rebuilt.

The *Decapod* type never came into such general use in this country as either the *Mogul* or *Consolidation,* but it is an interesting fact that three distinct types, having such similar characteristics, should have appeared within the short space of three years.

In 1866, Matthias N. Forney patented the design of tank engine which has ever since borne his name. Hundreds of Forneys, with the 0-4-4 wheel arrangement, were later built, especially for service on elevated railroads in various localities. Superintendent William Hudson, of the Rogers Works, also took out various pat-

ents covering different arrangements of trucks and equalizing systems, which were used principally on tank locomotives—many of them of narrow gage and intended for export.

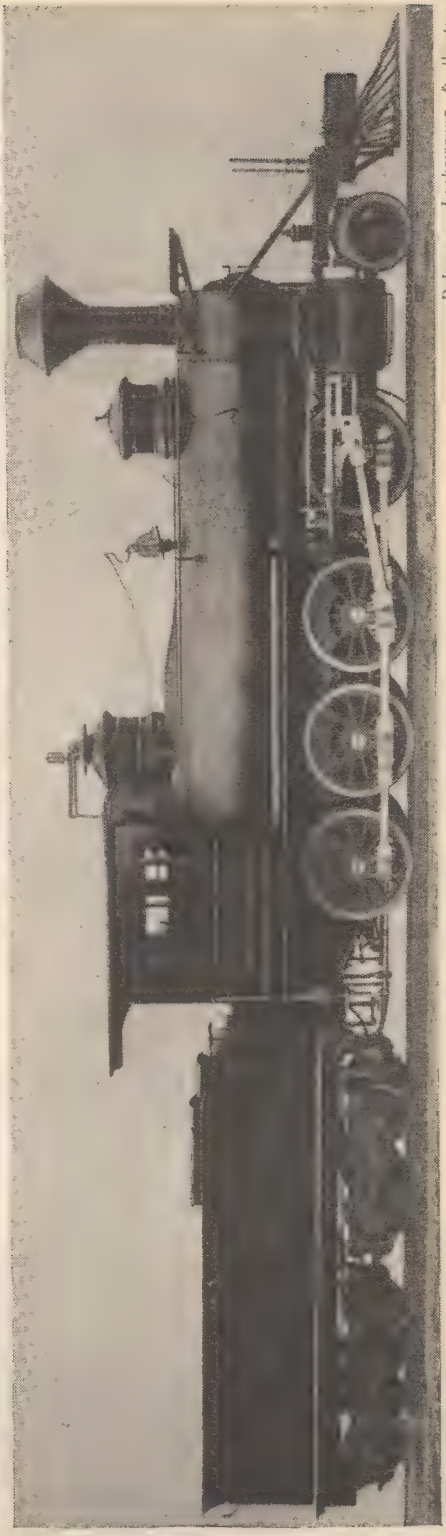
The Pennsylvania, in 1868-1869, designed a series of standard locomotives for passenger, freight and switching service, that had a maximum number of interchangeable detail parts. This was one of the most complete standardization programs ever carried out on any railroad.

1871-1880

THE 1870s opened with a business boom, which was followed, late in 1873, by a financial crash. The country was thrown into a panic, followed by a depression which lasted for several years; and the locomotive building industry suffered a severe set-back. By the end of the decade, however, the nation was getting back to "normalcy" and locomotive builders were booking plenty of orders.

Probably the most interesting development of this period was the invention of the Wootten boiler for burning waste anthracite coal, which was patented by John E. Wootten, General Manager of the Philadelphia & Reading Railroad on July 3, 1877. Wootten placed his firebox above the driving wheels and widened it out to the limit permitted by the loading gage. A feature of the construction was a combustion chamber extending forward into the boiler barrel. On large road engines the cab was placed ahead of the firebox, the result being a general design known on the Reading as "Camel Backs" and on certain other roads as "Mother Hubbards".

A most interesting locomotive—Baldwin Construction Number 5000—was completed in April, 1880, for the Philadelphia & Reading. It was of the 4-2-2 type, with a single pair of 78-inch drivers, and was intended for high-speed passenger service between Philadelphia and New York. By means of a patented device—the invention of William P. Henszey, a member of the Baldwin firm—the



Delaware, Lackawanna & Western

Alexander Mitchell originated the *Consolidation* type in 1866; gave it its name to commemorate the merging of feeder systems into the Lehigh Valley. Here's a typical 2-8-0 of that decade, built by the Lackawanna

Railroadians of America

Long-legged 10 **was the flower and fruit of** ***American*** **type designs. Built for high speed service in 1880, she had 78-inch drivers and a steam-operated power reverse gear**

Railroadians of America

Forney engines had rigid frames and swing bolsters on trailing trucks

Railroadians of America

Mason's suburban locomotives differed, in that the driving unit pivoted, necessitating flexible steam connections to the cylinders

fulcrums of the equalizing beams connecting the driving and trailing springs could be shifted to throw more weight on the drivers in starting. Another interesting feature was the boiler, which had a wide firebox of the modified Wootten type, designed for burning hard coal, and placed entirely behind the drivers and over the trailing wheels. The locomotive proved its speed ability, but its life on the Reading was a short one, and it was subsequently sold to Lovett Eames, who took it to England where it exploited the Eames Vacuum Brake.

1881-1890

THIS was a period of good business, and the railroads placed in service large numbers of new locomotives. A notable feature was the introduction of simpler designs of dome casings, sandboxes, bell stands, stacks and other details, which up to that time had often been made as ornate as possible. A leader in this reform was the Pennsylvania, which brought out an entirely new series of standard locomotives. First to appear were the "long legged" Class K engines (4-4-0 type, later Class D6) which were placed in fast passenger service on the New York Division. This road also introduced the Belpaire boiler in a series of *Consolidation* (2-8-0) type locomotives first built in 1885, and extended its use to passenger power in 1889. The *Decapod* (2-10-0) type reappeared in American practice, in two locomotives built by Baldwin for the Northern Pacific in 1886. Two new wheel arrangements, the 4-6-2 and the 4-4-2, made their appearance in experimental locomotives built in accordance with patents granted to George S. Strong. The first was the *Duplex,* Number 444, built at the Wilkes-Barre (Pa.) shops of the Lehigh Valley Railroad in 1886; and about two years later, two 4-4-2's appeared. One, named the *A. G. Darwin,* was built by the Hinkley Locomative Works at Boston for the Strong Locomotive Company; and the other, road number 738, of similar design, by the Schenectady Locomotive Works for the Atchison, Topeka & Santa Fe Railway. A special feature of the Strong locomotives was the boiler, which had two cylindrical, corrugated fireboxes, which united in a common combustion chamber. There were various other special features, too numerous to be mentioned in this connection. It cannot be said that the Strong locomotives exerted any great influence on subsequent designs, but they were the forerunners of two important types—the *Atlantic* (4-4-2) and the *Pacific* (4-6-2), the latter appearing first.

1891-1900

THE LAST DECADE of the 19th century was of unusual interest as far as locomotive development was concerned. It was ushered in with the appearance, on the New York Central & Hudson River Railroad, of a large 4-4-0 type for fast passenger service, designed under the supervision of William Buchanan, Supt. of Motive Power, and built by the Schenectady Locomotive Works. The cylinder dimensions were 19x24 inches, and the steam pressure was 180 pounds; some of the locomotives had 70-inch drivers, and on others the wheel diameter was 78 inches. Engine *870,* with the latter size wheel, made a fine record hauling the *Empire State Express,* and is probably the best known of the group. Following them came the *999,* built at the West Albany Shops of the Railroad Company, with a somewhat larger boiler and 86-inch wheels.

Highly extravagant claims regarding the speed capacity of this locomotive were made at the time, but it is to be doubted whether the engine really showed superiority over the *870.* The *999* was a handsome locomotive, displaying fine workmanship; and it was greatly admired at the World's Columbian Exposition, held at Chicago in 1893, where it was exhibited. It is still in existence, but with smaller drivers, a new boiler, and other changes, its original glory has largely disappeared.

At this same Chicago Exposition was shown a locomotive of the 2-4-2 type, named *Columbia,* and exhibited by the Baldwin Locomotive Works as representing the highest development of the fast passenger locomotive. It had Vauclain compound cylinders and driving wheels seven feet in diameter, with a narrow firebox placed back of the rear driving pedestals and above depressed frames which extended over the trailing axle. Hard-coal burning locomotives with the same wheel arrangement, but having Wootten fireboxes and central cabs, had been built a year or so previously for the Philadelphia & Reading Railroad. In 1894 the *Columbia* type was modified, by applying a four-wheeled leading truck, in a group of locomotives built for the Atlantic Coast Line under a guarantee to meet certain difficult requirements; and in 1896 Baldwin used the same arrangement in two high-speed locomotives built for the Atlantic City Railroad, which was owned by the Philadelphia & Reading. These latter locomotives, with Wootten boilers, Vauclain compound cylinders and driving wheels seven feet in diameter, made an astonishing speed record on the Seashore run; and their performance was largely responsible for the appearance of the Pennsylvania's first *Atlantic* type—Class E-1, represented by three "Mother Hubbards" built at Altoona in 1899. Other roads were adopting the 4-4-2, and by the close of the Century the *American* (4-4-0) type, which may be regarded as the most notable all-around type ever used in this country, had passed the zenith of its career in fast passenger service. The increased steaming capacity of the 4-4-2, due to the greatly enlarged firebox which could be applied, was the primary reason for its phenomenal success.

Records indicate that the first soft-coal burner with a wide firebox placed over trailing wheels was a 2-4-2 type, road number 590, built by the Baldwin Locomotive Works for the Chicago, Burlington & Quincy Railroad in 1895. The application of the wide firebox to soft-coal burning locomotives of the Atlantic type became established by the close of the Century, and it can truly be said that a new era in the development of the steam locomotive had begun. With ample room for a wide grate, and a deep furnace of large volume, the horsepower capacity of

Railroadians of America

Although not as famous as the *999*, New York Central's *870* (1891) established new standards for the heavy express engines which followed her

Reading Company

The *Columbia* type's high pony wheels were intended to stabilize her as effectively as four smaller bogie wheels. Performance seemed to bear this out but few roads were impressed

the locomotive was greatly increased, and this was accomplished without loading an excessive amount of weight on any one pair of wheels.

In 1897, the Baldwin Works applied the wide firebox and trailing wheels to a group of 2-8-2 type locomotives built for the Nippon Railway (Japan); and to that wheel arrangement the name *Mikado* type was appropriately applied. Early in the present Century the type was introduced on American railroads, and it soon became popular. With the same weight on drivers, a *Mikado* showed a marked increase in speed and horsepower capacity as compared to a *Consolidation*.

The nineties were notable because of the rapid increase in the use of compound locomotives. During the previous decade, a few compounds had appeared in the United States, but they were more or less experimental. But by the close of the Century, the compound was apparently well established in this country. Practically all the well-known builders were offering some form of 2-cylinder, or cross compound; the Baldwin Works were turning out large numbers of Vauclain four-cylinder compounds, a few tandem compounds were in service, and the Strong 4-4-2 type locomotive *A. G. Darwin*, which had been built by the Hinkley Locomotive Works in 1889, was rebuilt as a four-cylinder balanced compound. Many of these locomotives did good work, but as they grew older the cost of maintenance rapidly increased, and large numbers of them were later rebuilt with single-expansion cylinders.

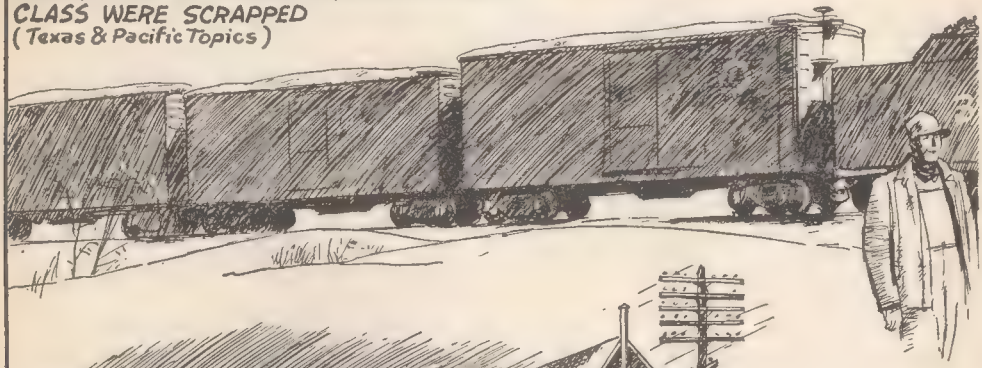
In 1899 the Burlington applied the wide firebox to a 2-6-2 type locomotive for fast freight service. This was really a development of the well-known *Mogul* (2-6-0) type, and to it the name *Prairie* type was given. For the succeeding five or six years *Prairies* were built in considerable numbers for both freight and passenger service, but they were soon being succeeded by the *Pacific* (4-6-2) type with a four-wheeled leading truck. Barring the Lehigh Valley locomotive *Duplex*, to which previous reference has been made, the *Pacific* type first appeared during the next decade. *(To be concluded next month)*

"*The railroad* that does not seek to build up the territory through which it passes by offering good service, pursues a policy that will only bring it to grief in the long run. It is like knocking the piers out from under a bridge, and a railroad man can no more afford to disregard such natural conditions than a bridge-builder." *Edward Henry Harriman*

ALONG THE IRON PIKE

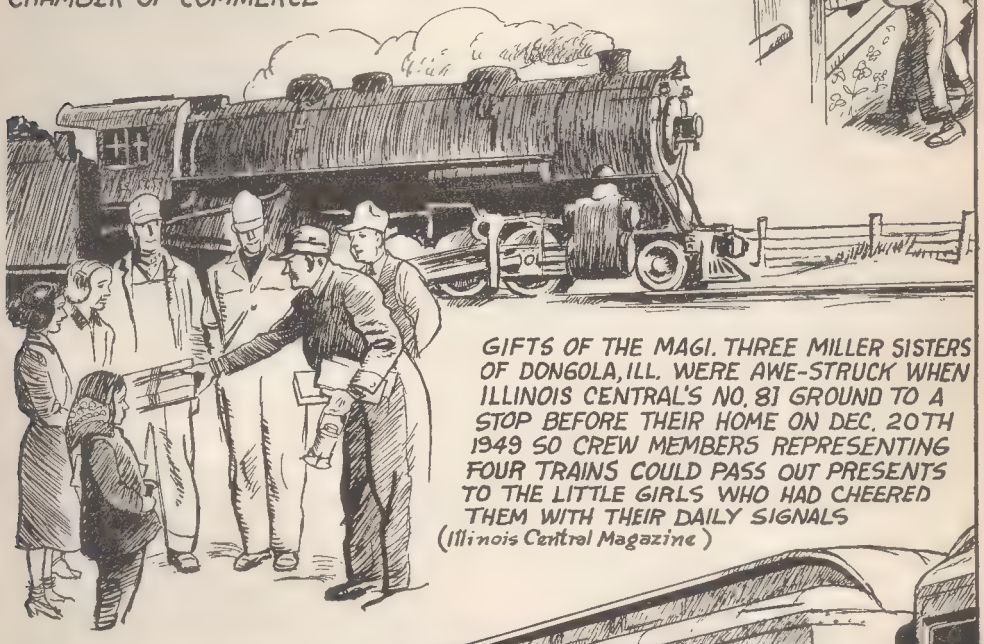
by JOE EASLEY

WORLD'S BIGGEST CHRISTMAS PRESENT. TEXAS & PACIFIC PRESIDENT W.G.VOLLMER SENT 701,700-POUND TEXAS TYPE LOCOMOTIVE 638 AS PERMANENT GIFT TO THE STATE FAIR OF TEXAS ON DEC. 22ND, 1949. ALL OTHER ENGINES OF HER CLASS WERE SCRAPPED (Texas & Pacific Topics)

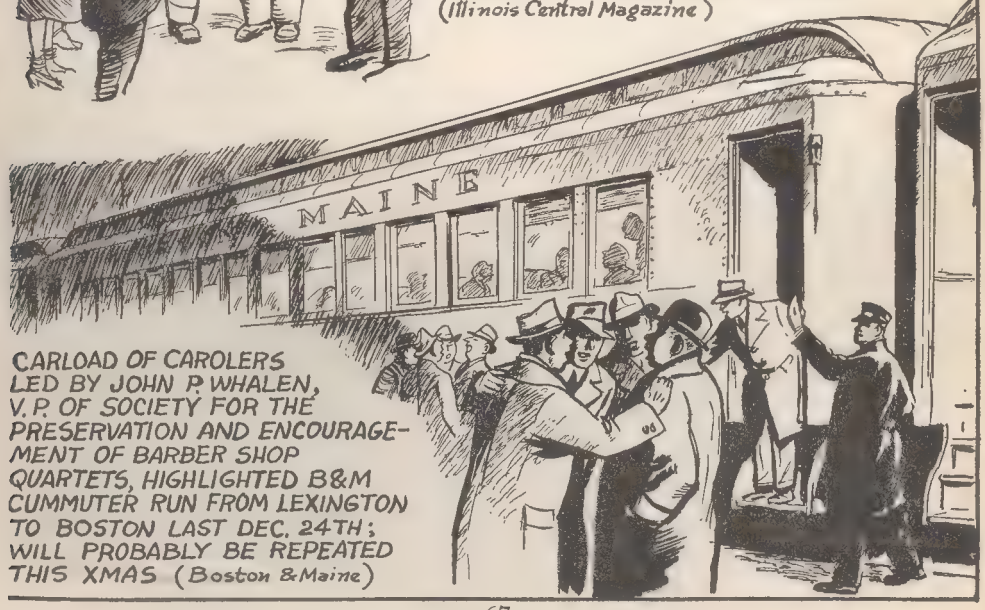


SANTA PREFERS A JERSEY CENTRAL DIESEL TO HIS TRADITIONAL SLEIGH WHEN HE VISITS ROSELLE PARK AND WESTFIELD, N.J. HUNDREDS OF YOUNGSTERS AWAIT HIS COMING IN CAB OF THE SANTA CLAUS EXPRESS (Central Railroad of New Jersey)

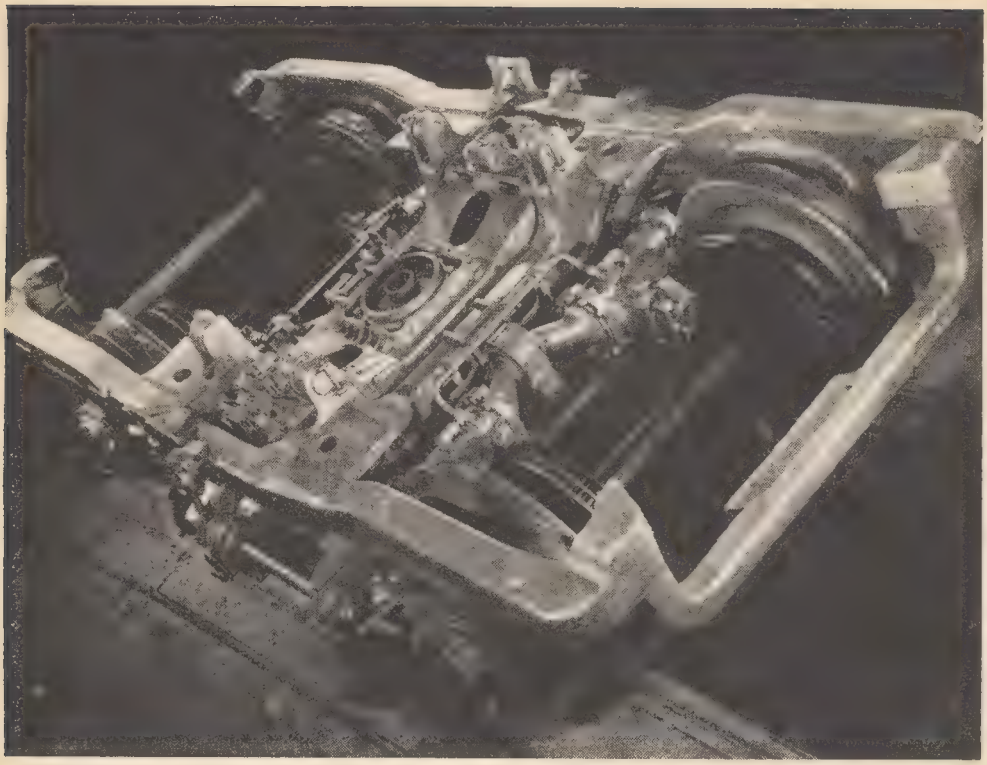
WHEN SIERRA MADRE, CALIF., FREEZES OVER IT'S NEWS--AND CHRISTMAS. 43-YEAR-OLD PACIFIC ELECTRIC DEPOT GETS AN ARTIFICIAL SNOWFALL, COMPLETE FROM ICICLES TO FROSTY WINDOWS, EACH HOLIDAY SEASON; COURTESY OF THE CHAMBER OF COMMERCE



GIFTS OF THE MAGI. THREE MILLER SISTERS OF DONGOLA, ILL. WERE AWE-STRUCK WHEN ILLINOIS CENTRAL'S NO. 81 GROUND TO A STOP BEFORE THEIR HOME ON DEC. 20TH 1949 SO CREW MEMBERS REPRESENTING FOUR TRAINS COULD PASS OUT PRESENTS TO THE LITTLE GIRLS WHO HAD CHEERED THEM WITH THEIR DAILY SIGNALS (Illinois Central Magazine)



CARLOAD OF CAROLERS LED BY JOHN P. WHALEN, V.P. OF SOCIETY FOR THE PRESERVATION AND ENCOURAGEMENT OF BARBER SHOP QUARTETS, HIGHLIGHTED B&M CUMMUTER RUN FROM LEXINGTON TO BOSTON LAST DEC. 24TH; WILL PROBABLY BE REPEATED THIS XMAS (Boston & Maine)



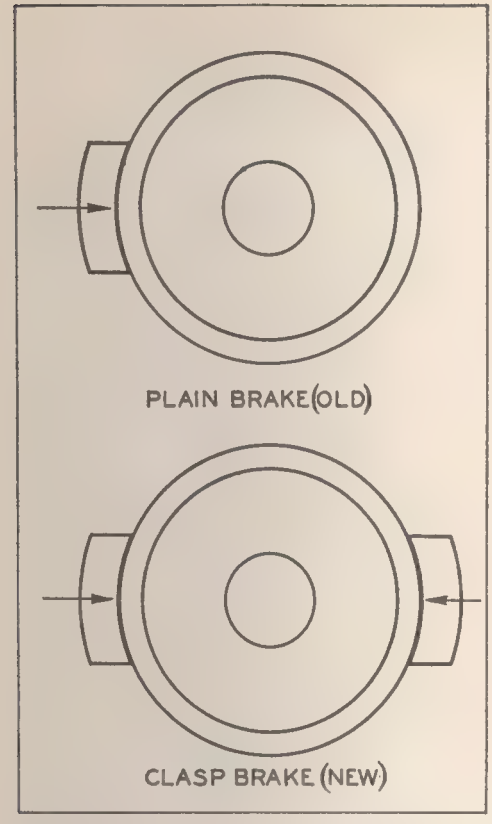
Light of the Lantern

THE DISC BRAKE

IT WOULD not be fair to detract from the credit due the large airbrake companies, who have done a truly amazing job of bridling the horsepower of today's giant locomotives. Without our present braking systems we could never have had the 100-mile-an-hour streamliner or the 12,000-ton freight train. And yet, with all this accomplishment, it is a fact that in an era of radar, television and hydrogen bombs, the principle of retarding trains is in the stagecoach era.

To put it briefly: however wonderful and complicated the maze of pipes, cylinders, pistons, valves, levers and springs may be, the final act of forcing a metal shoe against the rim of a wheel is primitive and wrong. It was adopted as a natural, evolutionary step more than a hundred years ago; borrowed from the wagon makers who, centuries before, had given up skidding their vehicles on steep grades after locking the wheels by thrusting a stout pole between the spokes and the wagon box. Save for its size and composition the railroad brakeshoe has changed very little since the 1830s; about the only improvement in design has been the development of the so-called clasp brake used on passenger cars and locomotives. Here, instead of one brake shoe for each wheel, we have two gripping each wheel from opposite directions.

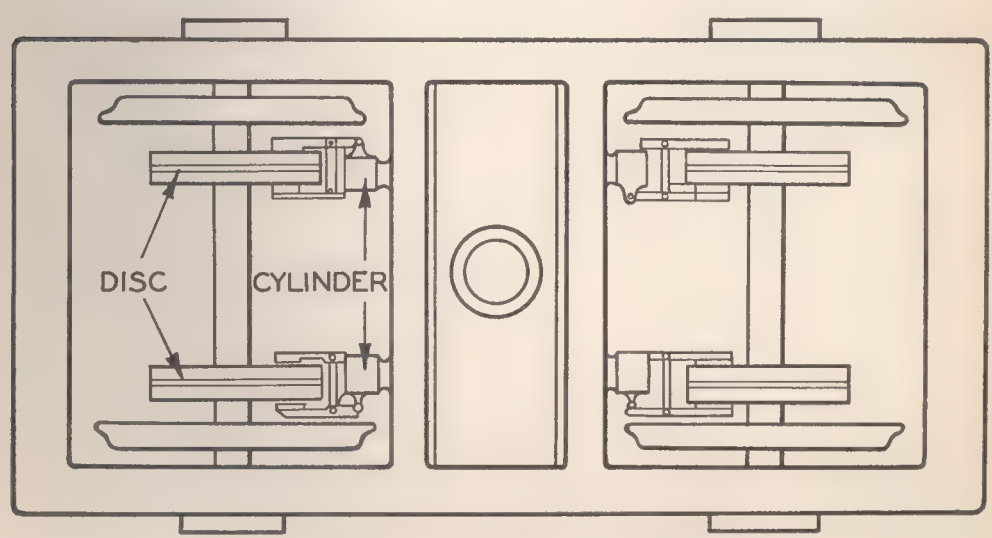
Exactly what is wrong with this ancient method of friction braking? Why should we take the brake shoe away from the



Opposite page: Timecard notation, red eye, torpedo or washout sign — all spell smooth, swift stops for the disc-brake-equipped ***Empire State Express.*** ***Above:*** Wheel tread brakes are effective but primitive. ***Below:*** Arrangement of Budd braking elements

rim of the wheel and put it in some other place? We all know that when two pieces of metal are rubbed together, heat is generated by a combination of speed and pressure. In the case of a passenger train, where wheels revolve at a high rate of speed, an average brake application produces so much heat that sparks fly from the shoes, producing a pinwheel of fireworks at the tread. When the brakes are released a current of air dissipates the heat and the wheels cool rapidly. Thousands of repetitions of this alternate heating and chilling produce rapid fatigue of the metal. Cracks develop and, in time, become dangerous fractures.

In freight service, on roads where grades are long and train tonnages high, it is not uncommon for drags to drift into a yard or siding and wait an hour or more for wheels to cool. The strain upon them is terrific during a mountain descent. Brakes must be applied continuously and in most cases retainers are set up, holding at least fifteen pounds' pressure in the brake cylinders at all times, regardless of the position of the brake valve. This sustained dragging of brakes causes the rims to heat up almost to the point of taking on color. Again comes the threat of wheel failure and possible derailment.



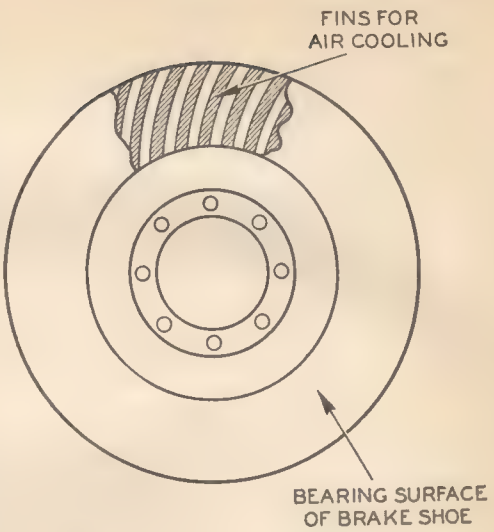
OBVIOUSLY, then, the need is for a brake that will do something more than retard the train. Wheels should be kept cool and the braking apparatus, if moved elsewhere, should be held to something like a normal temperature at all times. This presents no mean problem, for while the modern passenger locomotive may develop as much as 4000 horsepower, braking can call for twenty times that rating. Friction, under such conditions, produces fabulous degrees of heat.

Recognizing these facts, Budd Company engineers, with their automotive know-how, stepped into the railroad braking field several years ago with a novel, but entirely sound product which they call the *Disc Brake*. In designing it they were confronted with the need to make their apparatus work interchangeably and in harmony with conventional present-day equipment.

Fortunately, they did not have to start from scratch. Huge trucks and semi-trailers were rolling over the highways, controlled by drum brakes that rarely failed. The drum took the place of the wheel as the moving part and friction there was not transmitted to the wheel.

Our second drawing shows Budd's application of the same disc principle to railroad passenger braking. Bolted to the inside of the wheel hubs are cast iron discs with composition brake shoes, and rigging operated by cylinders whose pistons move toward the wheel when air is applied. The discs are so designed that their inside and outside faces are the shoe surfaces, while between these friction areas are fins which act like blowers, drawing in large volumes of air for cooling purposes and expelling the air after the heat has been dissipated.

Each cylinder is comparatively small with short piston travel. The piston operates a tong to which the brake shoes are pinned. Between the linings and the steel back of the shoes are rubber gaskets which tend to dampen noise as the brakes are applied. The shoes themselves cover approximately one-sixth of the disc surface and never get out of alignment.



Fins behind braking surfaces of discs dissipate friction-generated heat

FOLLOWING ICC regulations, brakes on all trains must be tested before leaving terminals. It is customary for the inspector or train crew to do this by inspecting the piston travels on each car. As the Disc Brake design is such that the travel cannot be seen, there is an indicator on the side of the car. When air pressure is admitted to the cylinders a small plunger moves outward, giving assurance that the brakes are applied on the particular car. During release the plunger drops back out of sight.

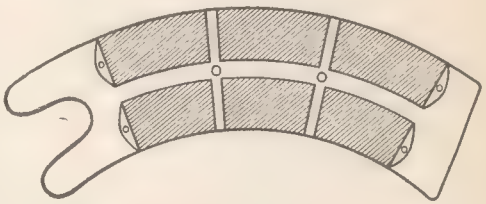
Anyone familiar with conventional train braking systems cannot but be impressed by the simplicity of the Budd Disc Brake. There is a conspicuous absence of intricate brake rod and lever action. The whole affair is extremely light and, of course, there are no iron shoes dangling at the rims of the wheels.

If this Disc Brake had the single distinction of stopping a train in a shorter distance than any other, its application would be justified. But its other superior features are numerous. Apart from the saving in weight (as much as 2000 pounds per car), inspection is made easier and maintenance is greatly lowered. All parts are readily reached on the repair pits and

the brake shoes can be changed in a jiffy. As in the case of automobile brakes, the strain on the various moving parts is light, so pins and bushings get very little wear and last for long periods. Yet for all the lightness of individual parts, there is a decided ruggedness of overall design.

In the case of the latest clasp brake the number of parts per truck runs to 104 while the Disc Brake needs only 56. And, as opposed to a life of 6000 miles for the conventional brake shoe, the Disc Brake shoe will last for 100,000. On a cost basis, the latter, which is necessarily more expensive, still shows a two-thirds' saving.

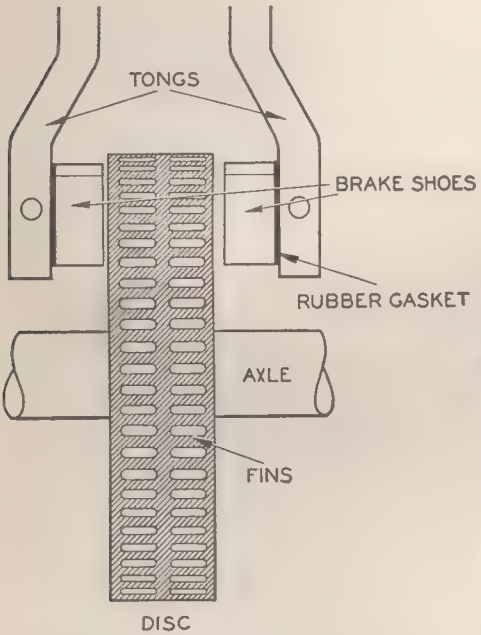
Passenger-comfort-wise, the Disc Brake has no equal. At extremely high speeds, a heavy application produces no bucking, but a smooth and silent deceleration. During a recent test an accident occurred which reminds one of the incident which confronted Westinghouse on his first trial run. While the train was whizzing through mountain country a slide dislodged a boulder which rolled down onto the track and under the cars. A brake pipe was broken and immediately there was an emergency application. With conventional equipment the resulting stop would have shaken up equipment and passengers; however, this undesired application was so well handled by the Disc Brake that those aboard were not aware of what had happened until an investigation brought out the details.



Shoe segments like this may be replaced quickly

It is too early to predict that the future will find all passenger cars equipped with this device but with its vast superiority the greater cost of the initial installation would seem no detriment. Tests have proven that wheel friction is almost constant, regardless of the brake cylinder pressure, speed of the revolving wheel and even the temperature rise which results on heavy downgrades. This is not true in the case of the clasp brake, which requires some automatic means to reduce cylinder pressure as speed decreases, to prevent wheel slippage.

In freight service it is doubted that the Disc Brake has the same favorable possibilities, inasmuch as the dynamic or regenerative braking described in an earlier article is already changing the whole braking picture.



Like giant pinchers the tongs move in to grip the disc between composition shoes

INFORMATION BOOTH

Each month the Lantern Department prints answers to rail questions of general interest, submitted by our readers. We do not send replies by mail.

Q. *Give details of the Pennsylvania Railroad's latest order of Diesel power.*

Rail Photo Service, 93 Mass. Ave., Boston 15

Strikingly similar to our April, 1947 cover illustration is this more recent view of Erie's Starrucca Viaduct, underpassed by Delaware & Hudson's line from Carbondale, Pa. Hinged 1521 is wheeling downgrade to the Susquehanna with a northbound coal drag

A. On September 5th, PRR announced that it had placed orders for 214 road freight and passenger locomotives and switchers, totalling more than 500,000 horsepower and costing about $55,000,000. The new equipment, delivery of which is expected to be completed by June, 1951, will increase the Pennsy's Diesel-electric fleet to 1034 locomotives and its total Diesel horsepower by more than one-third, to 1,943,510 horsepower. It is believed that this new power, when delivered, will represent the largest single acquisition of Diesels by a railroad. Inquiries looking toward orders for construction of the new engines had been begun before the outbreak of hostilities in Korea. Walter S. Franklin, the Pennsy's President, stated: "On the Pennsylvania there are many train operations now powered by steam locomotives, and in a number of instances the economies inherent in Dieselization, compared with steam power, are not sufficient to warrant the investment in Diesels. For this reason we intend to continue the use of steam power where it is economically justified."

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Q. *What percentage of passenger revenues is produced by streamlined passenger trains in the United States?*

A. Streamliners, which account for only 6.1 percent of all passenger-train miles, produce 9.9 percent of all passenger revenues, excluding commutation.

•

Q. *I read recently that the Chesapeake & Ohio operated the world's longest coal train into Toledo, on September 22nd, in connection with ceremonies commemorating the dedication of Toledo's new $5,000-000 Union Terminal. Can you tell me the length of this train?*

A. One-and-three-quarter miles in length, this 200-car coal drag was pulled by two locomotives and pushed by a third; carried 15,000 tons of coal from Ohio and West Virginia to the lake port. While the tonnage was probably the heaviest on record, publicists seem to have forgotten that in 1914 the Erie's *Matt Shay* pulled a considerably longer test train of 250 loaded 50-ton hoppers from Binghamton, N. Y. to Great Bend, Pa.

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Q. *Last summer Ringling Brothers and Barnum & Bailey Circus moved from Newark, N.J. to Westbury, Long Island. Describe the details involved in this costly move.*

A. On June 9th and 10th, Ringling Brothers and Barnum & Bailey Circus played under canvas in Westbury, the first time that any major circus had performed on the North Shore. Sponsored by Manhasset American Legion Post 204, to raise funds for the welfare of disabled veterans in veterans' hospitals on the island, the circus gave four performances. The tents were pitched on 47 acres of flat farmland on Old Country Road, adjacent to the Long Island Rail Road tracks. The circus closed its Madison Square Garden run on May 7th and then moved up to Boston. It worked its way back to Newark and on

(Continued on page 74)

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Q. *List specifications of the Erie's K-2A Class passenger locomotives as compared with those of the K-5A Class.*

A. Both of these are heavy *Pacific* types. Specifications are as follows:

Class	*Numbers*	*Cyl's.*	*Drivers*	*Pressure*	*Eng. Wt.*	*Trac. Effort*	*Builder*	*Date*
K-2A	2905	26x28	77	200	301,800	41,800	Alco	1917
K-2A	2909-2910	26x28	77	200	301,800	45,100	Alco	1917
K-5A	2935-2944	27x28	79	210	323,000	46,100	Bald.	1923
K-5A	2960	27x28	79	210	328,950	46,100	Bald.	1926

Jim Scribbins, 1609-A West Center St., Milwaukee 6, Wisc.

Built for Russia but never delivered, G.E.s 5-foot gage 2-C+C-2s have been converted for home-front use and now operate on the South Shore Line and the Milwaukee Road. Here's a brace of "Little Joes" getting a coat of pumpkin orange at the latter's "Cream City" yards

(Continued from page 73)

June 8th, made its hop from New Jersey to Westbury. To make the Long Island show, Poughkeepsie was eliminated from the regular run. The haul from Newark to Westbury took ten hours. Twenty-five coaches carrying circus personnel and performers moved over Pennsylvania Railroads tracks through the Hudson tunnels to Long Island tracks, then to Mineola, L.I. Fifty-five flat and stock cars carrying animals were hauled by barges from Greenville (Jersey City) to Bayside, Queens. Seven car float loads were involved. In Queens the cars were moved on Long Island tracks to Mineola, and from there it was a five-mile haul to Westbury. It took Waldo Tupper, general agent and traffic director for the circus, over a month to work out details with the Long Island.

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Q. *How are the railroads paid for handling mail?*

W. R. Hicks, 25 Hawthorne Ave., Glen Ridge, N. J.

One for the scrapbook. This old Swift reefer turned up at Hagerstown, Md. recently, sandwiched between a pair of hoppers

A. Railroads are paid on a space basis —that is, they are paid for mail transported on the basis of railway car space ordered by the Post Office Department. Prior to 1916, the railroads were paid on the basis of weight of mail carried. The sytem was changed on the recommendation of the Post Office Department because it was felt that the space basis was more equitable both to the Department and to the carriers. Before passage of the Mail Pay Act in 1916, committees of Congress conducted extensive hearings on the question, and it was finally decided to give the Interstate Commerce Commission authority to make the rates upon the basis of space or weight or a combination of the two.

After further hearing, the Commission decided upon the space basis. It was obvious, however, that in some way there must be compensation for the return of empty mail equipment, as on many railroads the movement is much heavier in one direction than in the other. This variation between the flow of mail on the different railroads (a flow which is controlled in part by conditions and in part by the Post Office Department) made it necessary to find some basis of compensation for handling the empty mail cars. Two possible methods presented themselves. One was to make a rate sufficiently high on the loaded movement to cover both loaded and empty handling of the cars. The difficulty about this was that it would have overpaid those railroads with a substantially balanced movement of mail, while greatly underpaying the roads on which the movement was predominantly in one direction. The alternative was to fix a loaded-car rate which would suffice to cover the loaded movement, and to provide for a specific and separate charge upon the return of those cars which had to brought back empty to meet the needs of the postal service. This was the alternative decided upon and since continued with slight modifications by the ICC. In the light of experience, this method was not only the fairest but also the most practical way of dealing with the situation. As the Post Office Department requires that mail cars be returned promptly to the heavy mail-loading points to meet postal needs, empty mail cars are sometimes operated in return movement in full trainloads.

Herbert O'Hanlon, 2695 Bellaire St., Denver 7, Colo.

Eighteen feet of June snow didn't prevent trusty Cog Engine No. 6 from clearing a path to the summit of Pikes Peak in 1947 B. D. (Before Diesels)

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Q. *Can you run a brief account of the Toledo, Peoria & Western's two-stack engines which were placed in service during the 1890s? What was the idea of this arrangement?*

A. Engine No. 6, bearing a pair of smokestacks, was one of ten Rogers *Consolidation* type locomotives owned by the TP&W and built about 1894 or 1895. The smokestacks were placed side by side.

Daniel L. Burkett, Gen. Del., Weaver, S. D.

Measured in years the Alaska Railroad is a stripling; in terms of rapid growth it has no equal. Last year Fairbanks' residents enshrined a diminutive saddle tanker of the early 'Twenties beside the right-of-way; whooped it up for a new 2000-horsepower Diesel named the *Au-Ro-Ra*

The two exhaust pipes met at the base of the "Y"-shaped pipe and each discharge of steam from each cylinder exhausted through both stacks. The nozzles were flush with the horizontal sheet of netting. This arrangement gave a more uniform draft through all the tubes than when a single central stack exhaust was used. The single stack had the heaviest draft through the middle tubes.

B. W. Warren, who was general foreman of the Toledo road patented that two-stack draft equalizer and tests were made in 1896 that proved the two-stack gave an improvement of three percent in speed; ten percent evaporation of water; eleven percent on coal per ton and eight percent on coal per ton per mile. The only bad feature of the two-stackers was that they would not lift the smoke after the throttle was shut off. When drifting into town, or on a downgrade with the steam shut off, the smoke would trail down along the top of the cars, unless engineers used the blower to lift it. On freights, when the brakeman had to decorate, it was too much smoke without the blower, and the same on passenger. The Toledo, Peoria & Western and the Texas Central are the only railroads that used this particular design of two-stack engine.

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Q. *Print figures showing freight train operating efficiency for 1949.*

A. More tons of freight were moved more miles per train hour than ever before, by Amercan railroads, and the number of cars per train and the average speed also set a new record. Tons of freight moved one mile for each hour of freight train operation averaged 19,023 ton-miles in 1949, compared with the previous high of 18,779 ton-miles in 1948, and 10,580 in 1929. The performance in 1949 was greater by eight percent than the war-time record of 17,623 ton-miles per hour in 1944. The average freight train moved 56.8 cars in 1949, compared with 54.5 cars in 1948 and 53 cars in 1944. Freight

trains on the average moved more than four percent faster in 1949 than in 1948, and nearly eight percent faster than in 1944. This new high record in freight train operating efficiency took place despite a lower volume of traffic in 1949 due, in part, to a reduction in coal shipments.

Q. *The schedule of the Southern Pacific's* Cascade *was recently stepped up. Give details.*

A. Espee's completely streamlined *Cascade,* operating over the Shasta Route between the San Francisco Bay cities and Portland, now makes its 718-mile run in 16½ hours, cutting two hours off the former schedule. The new Diesel-powered, thirteen-car, all-Pullman streamliner carries through cars to accommodate travel to and from Seattle.

From the Collection of Norris R. Young

Roofing Glen Afton cut with her fog, Western Maryland's 44 weaves eastward with Train Number 6. The Baldwin *8-Wheeler* was twelve years old when this photo was made in 1907

TEAMWORK

CHARLES E. SMITH

ANY JANUARY NIGHT in Lindale—the Cleveland, Cincinnati, Chicago & St. Louis terminal on the outskirts of Cleveland—is cold, but the night of January 15, 1920 was exceptionally frigid. The temperature was near zero, and a cutting wind of gale-like intensity added to the discomfort. When I entered the switch shanty—I had been called to work on a third-trick switch engine crew—the place was packed. And even though it was almost midnight, several second-trick workers who had labored all afternoon lingered in the warmth of the room, slumped on every available seat.

One sniff revealed the cause for so much dalliance. The locker room reeked with the fumes of moonshine whiskey—it was payday—and as long as anything in the way of liquid stimulation remained, many of the second-trick switchmen would also be on hand. In one corner of the overheated shanty sat a scrawny, ragged tramp, the very personification of despair.

His clothing was thin, his shoes were thin, and his face and body thinner. A flimsy felt hat drooped wearily over one eye, the sleeves of his coat and the cuffs

"Here's five," said the stranger, dropping the bill into his hat. "Any more?"

of his trousers had taken on a distinct buckskin fringe effect, and his bare toes peeped through the cracks in his dilapidated lowcut shoes. Except when a racking cough, repeated with clock-like precision, shivered him from stem to stern, he stared gloomily at the floor.

Occasional glances of sympathy were directed at the cadaverous individual by the assembled switchmen. But as the shabby tramp attempted no conversation, none of the railroad employes said anything to him. They let him suffer in silence, a silence broken only by the periodic spasms of coughing.

At the stroke of twelve, a well-dressed man of pompous appearance walked into the switch shanty. Immediately he began shaking hands with the switchmen one after another, after introducing himself as a visiting brother from Atlanta, Ga. I thought it odd that a brother—visiting or otherwise—would be paying calls at such an hour, but I shook hands with him and welcomed him, as did most of my fellow workers.

The seemingly prosperous stranger told us that he was on a visit to his sister's home—his sister Mary, who was married to a wealthy Cleveland businessman—but that a yearning for his own kind had come over him. Since the Big Four switch shanty was located not too far from his brother-in-law's mansion, he had decided to drop around and gab awhile. The visiting brother was a smooth talker. And after showing his paid-up receipt in the Brotherhood, he was received with open arms by the majority of the congregated switchmen.

"I feel more at home in the switch shanty," stated our affable brother from Atlanta. "Caviar served on imported china is all right for a while, but it soon gets tiresome. I'll be glad when my visit is over—but I can't run off right away. I'll just have to stay a few days . . . she's my only sister . . . I'm just waiting though for the day when I'll be back working on my switch engine in Atlanta."

Here the worthy horned right in on the switchmen's drinking liquor. He drank from each and every proffered bottle, as though his mother had never laid a hand on him for holding his breath when he was a child. So it wasn't long before he'd exhausted the small amount that existed prior to his arrival at the shanty, and at this point many of the afternoon workers arose to leave. But before any of them had made an exit, the visitor announced that he wished to make a short speech of thanks. He walked rather unsteadily to the center of the locker room, removed his hat and then began to deliver his oration.

"Brothers and Gentlemen," began the man from Georgia, after bowing low in an almost disastrous dip, "it gives me great pleasure to. . . ."

THE VISITOR stopped his oration as he observed, seemingly for the first time, the pain-racked bundle of rags in the corner. He strode to the corner of the switch shanty and addressed the thinly-clad vagabond. He examined the fellow's wretchedness for a moment, and his voice exuded tender pity as he said at last,

"Brother, are you in trouble?"

"Yes," that wretched person answered, feebly.

"Are you a railroad man?"

The derelict again replied in the affirmative—shame-faced, and in an almost inaudible whisper.

"Do you belong to the Brotherhood?"

Another faintly heard affirmation came from the down-and-outer. He engaged in a lengthy spell of coughing before reaching into his pocket to extract the current paid-up receipt. He looked more woebegone than ever.

"Lodge 624, Jacksonville, Florida," read the worthy from Atlanta, in a loud bellow.

Then the stranger returned to the center of the switch shanty, the poverty-stricken sick man's Brotherhood receipt held in his hand.

"Brothers," he recommenced, "this is disgraceful—to think that one of our own kind should have fallen into such a desperate state."

He paused to allow time for his words to sink in. Except for another outburst of coughing, the switch shanty was as quiet as a tomb. The switchmen looked at one another in an embarrassed way, most of them feeling guilty about the lack of consideration for the sick brother. The man from Atlanta held the receipt up for all to see, and then continued with his alleged short speech of thanks—for the drinks which were now forgotten.

"I'll repeat, Brothers, this is a disgrace. Here is one of our own kind, sick and hungry—I assume that he's hungry."

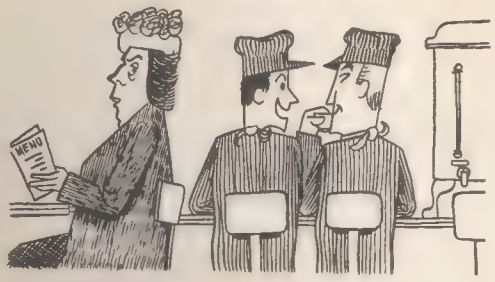
Turning to our fallen brother, he asked, "You are hungry, aren't you?"

"I ain't eat nothin' for three days," came the feeble reply.

"Well, we'll do something about that right now," bellowed the man from Georgia.

He pulled a huge wallet from his inside coat pocket, extracted a five-dollar bill, placed the note in his inverted hat and, with all the fiery enthusiasm of an oldtime revivalist, started taking up the collection. Almost everyone donated something. I dropped a dollar in the hat even though the switchman seated next to me whispered that it looked like a phony deal to him. The Southerner must have gathered more than a hundred dollars before he was through.

After taking a sweeping look—to make sure that he hadn't missed anyone—the visitor strode to the corner once more, handed the hatful of bills and silver to our unfortunate brother, removed his overcoat



"Maybe she's old and ugly, but she's a honey in the yard"

and draped it across the shivering sick man's shoulders. As the prosperous gent from Atlanta was at least twice the size of the fallen one, the effect was ludicrous —but more than that even more pathetic than his earlier appearance.

"Come with me, Brother," said the visiting switchman, after the bedraggled switchman had stuffed the collection in the pockets of his ragged coat. "I'll see that you get to a hotel room."

He bustled to the door of the switch shanty. The undernourished individual followed briskly even though the cumbersome overcoat impeded his progress to some extent, more than a yard of the tail dragging on the floor.

"Thank you, Brothers," bellowed our generous visiting brother from Georgia, as he opened the door. "Thank you, one and all."

"Thanks, Brothers," piped the sick man, after a final coughing spell.

The switch shanty door closed behind them.

PHONIER than a couple of nine-dollar bills," persisted "Knuckle Head" Quinn, the switchman seated next to me. "It's exactly 12:14—took 'em less than thirty minutes. That beats switching boxcars by a long ways. The little guy comes in at 11:45, the big guy at midnight, and they go out together with the loot fourteen minutes later. Less'n half an hour for the whole transaction. What a bunch of chumps it makes us look! I'll bet those two are giving us the hee-haw right now."

"You should be ashamed of yourself," protested "Slats" Finnigan, the yard conductor with whom I worked. "You're suspicious of every person you meet. There's no doubt in my mind about those brothers. The one from Atlanta comes from a part of the country where kindness and hospitality are rated higher than suspicion and selfishness; you've heard of Southern hospitality, haven't you? Well now you've just seen it."

"I've heard of it," answered Knuckle Head sullenly, "but I ain't sure but what it's phony too. That pair was counterfeit; everything clicked too well. There's something fishy."

Slats Finnigan replied to Knuckle Head Quinn's sardonic statements by launching into a lengthy harangue concerning the cynicism, greed and absence of Christian charity in the world. Buoyed up by several jolts of corn liquor which he had swallowed but half an hour earlier, Slats talked on and on. He called Quinn's attention to his Brotherhood obligation, pleaded for a greater display of brotherly love toward more unfortunate persons and wound up by fulminating against the illiberality and stinginess of modern-day human beings despite all their pious talk of the brotherhood of man.

By the time that Slats had concluded his castigation, most of the assembled workers had regained the holier-than-thou expressions on their countenances which had been wiped off by Knuckle Head's cynical remarks. The sermon didn't seem to make much of an impression on Quinn though; he appeared to be as crass and worldly as ever. The yardmaster entered with the work assignments, and nothing more was said about the affair.

One month later, at midnight on the fifteenth of February, Finnigan walked into the switch shanty, seated himself next to Knuckle Head Quinn, removed his hat and said humbly: "I owe you an apology, Knuckle Head, you were right after all."

"Right about what?" asked Quinn, suspiciously.

"About that pair of brothers who were here one month ago."

"Oh—I know that, but go ahead with your spiel."

Slats Finnigan stood up before going on with his apology.

"Well, gentlemen, we were taken for a buggy ride by that pair of worthies last month. Knuckle Head's observations were correct. I hate to admit it, but everybody was wrong except Knuckle Head."

Finnigan whirled his hat on the point of his left index finger for a moment, took a deep breath and continued.

"I saw the guy from Atlanta sitting at a table in a classy restaurant on Euclid Avenue the day after they were in the switch shanty, but I thought the little guy across from him was a different person from the one who was here in the corner. He didn't look like the same one at all, except that he was about the same size. He was dressed better than the brother from Atlanta and I just couldn't make myself believe that he was the one who was here in the shanty, but now I know he was. They were sitting there, laughing and talking, with a porterhouse steak in front of them, when I saw them in the swell restaurant. But I gave them the benefit of the doubt. I couldn't see the little guy's face very well from where I stood, and I wouldn't have believed it anyway. I'da thought it was an optical illusion."

Finnigan paused embarrassedly, cleared his throat and went on.

"Three days ago, I laid off and took a run over to Toledo to see my cousin; he's working nights for the Hocking Valley. When I walked into the switch shanty, there was the little guy in one corner, whooping and coughing his head off. Of course I smelled a mouse right away; but I didn't say anything. I sat down and waited to see what would happen."

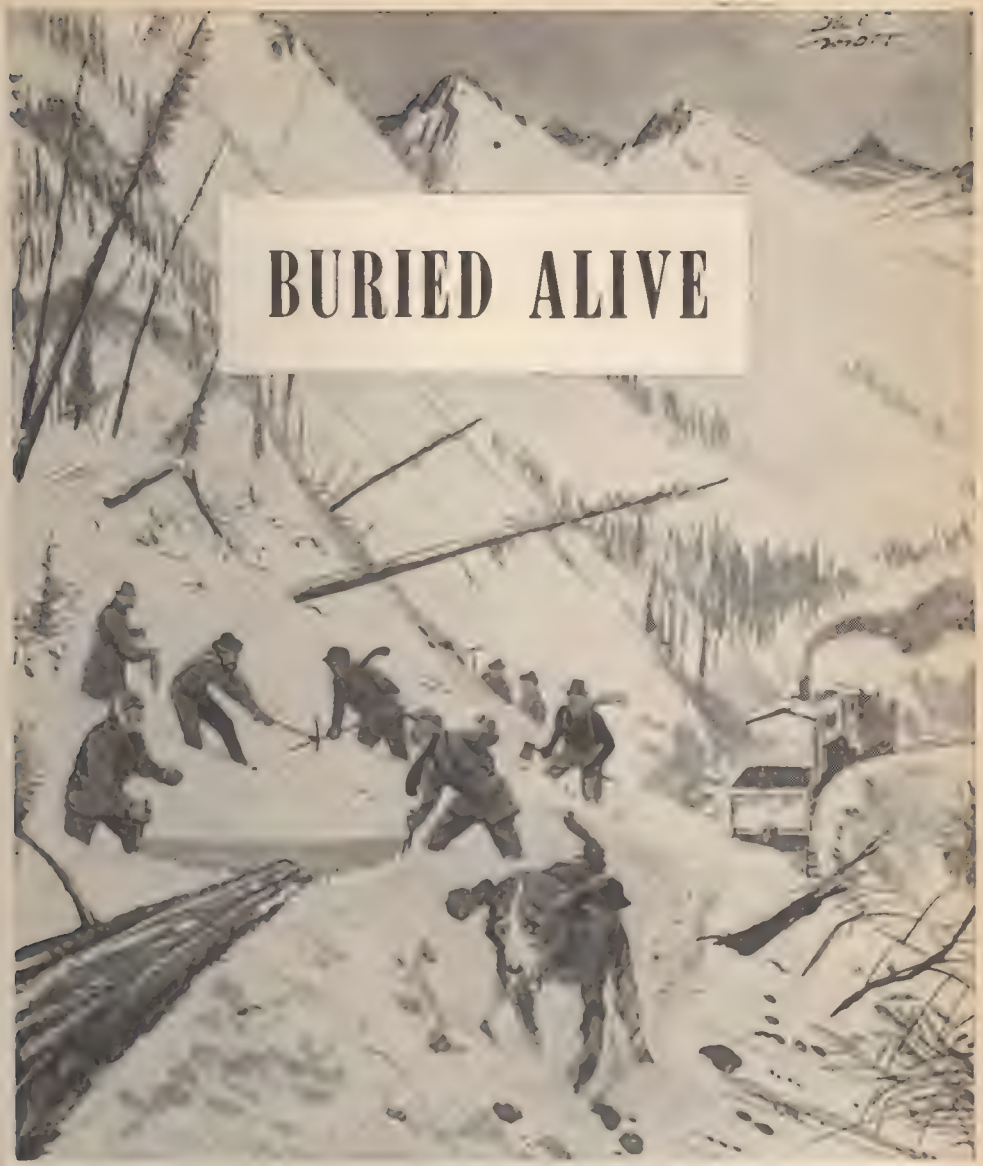
Slats made another momentary halt. Knuckle Head Quinn chuckled.

"At exactly midnight, the big guy entered and it was the same thing all over again, except that he was from Chattanooga instead of Atlanta. I can't recall a single word or gesture that wasn't an exact duplicate of the performance here—only, like I already said, the big bruiser told the Hocking Valley bunch he was from Chattanooga."

"I suppose the good samaritan relinquished his overcoat again," interrupted Knuckle Head sarcastically.

"Certainly. And the tail dragged on the floor when he followed the big guy outside, just like it did here a month ago. I offer my apologies, Knuckle Head. The scales have fallen from these unbelieving eyes."

"That's all right, Slats, forget it. I always was good at spotting false alarms; it's a kind of sixth sense with me. If ya got anything left in that bottle of corn squeezins, you can show me some of your brotherly love. Charity begins at home, you know. So give, brother!"



BURIED ALIVE

WILLIAM T. DUNLAP

WHENEVER I tell the story of John Collinwood, I am resigned to the fact that few of my listeners will believe me. Frankly I don't blame them altogether. If I hadn't been in British Columbia during the winter of 1909-10, I would undoubtedly have a difficult time picturing for myself the desperate conditions under which men labored then, hounded by wind and snowfalls and then the ever-present threat of snowslides and avalanches when the spring thaw came. But since I was stationed at Bear Creek that winter, just two miles east of the Canadian Pacific snowshed where John Collinwood stood guard, I speak from

personal experience. I remember that winter day only too well.

In this almost uninhabited region of the Selkirks a railroad job was a lonely job, cut off as we frequently were from even one another. Bear Creek, B. C. stands high on a mountainside and must therefore endure severe winters. Even at that altitude, however, the year 1909-1910 set a record. Never before had snow fallen so heavily. During the early months of spring, when the snows—hundreds of feet deep in some places—began to loosen and melt, snowslides and avalanches commenced cutting straight swathes down the southerly exposed sides of the towering conical peaks. It was then our real trouble began.

Watchmen paraded their rights-of-way more cautiously, looking and listening for signs. At any moment the mountains might start to move. A small slide is not especially feared. While it will carry a few loose and comparatively small boulders onto the railroad track, warning can be wired ahead to trains and the road gangs can clear the line in short order. But the crackling, roaring avalanche is something else again. Sweeping destructively down the slope with a force unimpeded even by tall pine forests, it will drive before it like clay pipestems trees as much as five feet in diameter, together with rocks, ice and snow, traveling in a swift arrow-like path down toward the valley.

Amid danger such as this, John Collinwood had existed for years, keeping his beat with his sole companion a small black curly-haired dog called Pepto. More than once, Pepto had proven himself a faithful watchdog. Collinwood never went his rounds without him, so they were together that winter day in 1910 when, without warning, an avalanche of large proportions roared down upon them. The watchman never had a chance; he was buried deep in a newly made tomb.

Repercussions of the snowslide were felt all along the line. I knew that something bad had happened when telegraphic communications to the west were cut, stopping all traffic on this very busy division of the CPR. By grounding my wire I was able to operate the line eastward. But owing to the lack of a western terminal battery, this worked very poorly as far as Field, 80 miles away.

Late that evening the Bear Creek section foreman and his men came back to the office. They had gone up the line to make a survey and reported that the railroad cut was completely blocked with snow and debris, and that the slide—a quarter of a mile wide—had engulfed or swept away the watchman's shack. With Collinwood missing there was only one thing we might suppose: that he had been caught and carried off in the onrushing mass.

For the time being it seemed that there was nothing we could do—but wait. Hours later I heard, very feebly, my call ticked out by the brass tongue of the little sounder. The sender was calling me slowly and the signature was WN. This meant Winnipeg, I knew. Evidently the wires had been spliced and I had a premonition that the message to be sent was important. I acknowledged the call rather nervously, prepared for the worst.

The first question—which concerned the extent of the damage—identified the operator, when the initials G.J.B. came across. G. J. Bury was general superintendent of the Canadian Pacific Railway. In the next few minutes he shot question after question at me, and even while I answered I marveled at the extraordinary knowledge of the line his conversation betrayed. He seemed to know exactly where the avalanche had swept down the mountain in relation to all right-of-way structures and track conditions. And once he'd located the source of the trouble, his next question was, "What about the watchman? Is his shack still standing?"

On this score I had no information to offer. I could only promise to report to headquarters the moment we had news.

AT DAYLIGHT the next morning two small armies of men set out to clear the line. One party headed along the east

bank, the other on the west bank, of what had once been the mainline cut. It was leveled off with debris now, which made the process of digging it out far from easy. Snow was one thing. But hard-packed snow mixed with boulders, tree trunks, branches and roots meant that in many cases the trackmen had to saw the tree trunks in two or more pieces and to blast out the larger rock formations.

They had not been long at their difficult task when one of them noticed, several hundred yards away, a small black dog digging a hole in the uneven and newly laid heterogeneous mass. Calling the foreman's attention to this activity, he and several others made their way across the broken heap, carrying their tools with them. There seemed little doubt that somewhere beneath that mess lay John Collinwood. "Look at the game little fellow trying to dig out his master," was one gandy's way of expressing what they all felt.

Despite their haste—excavating with crosssaws, shovels and picks—progress was slow. The object of their search turned out to be buried far deeper than anyone had suspected. It was four o'clock that afternoon when they uncovered the unconscious form of John Collinwood. By that time the watchman had been missing for 24 hours. No one actually thought that there was even a remote chance of his being brought out alive.

Yet after a few hours of medical treatment, the watchman revived. In a few days he was able to resume his tour of duty and seemed little the worse for his tussle with death. I ran into him not long after the accident and was surprised to see him so fit. Of course I wanted to know all the details of that never-to-be-forgotten afternoon.

"You're the only man I've ever met who was buried alive and brought back to life, John," I told him. "I may be telling others about it some day so I'd like to know just how it did happen."

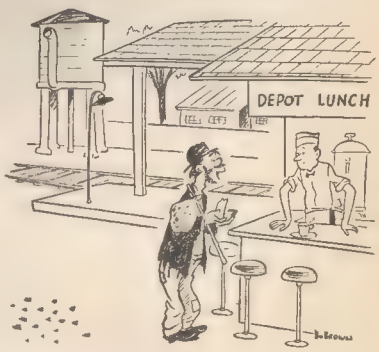
This is the story as John related it. He and Pepto were patrolling the track that day when suddenly—like a shaft of destruction falling out of the heavens—he saw the avalanche descending upon him. Though he knew the effort was futile, he tried to run out of its path. Of course he only got as far as the edge of the rapidly shooting stream of debris when he was struck down. His dog, a few yards in front of him, was hurled to safety by the cyclonic force of the outward air rush. But in less time than it takes to tell it, Collinwood was buried in a snowy grave more than 20 feet deep.

"It must have been horrible for you. Was the pain very bad?" I asked.

Collinwood shook his head. "Not too bad," he replied. "I was lying flat and nearly face downward. At first the pressure was not so hard to bear and I could breathe fairly easily. But as it gradually tightened, I felt I'd never draw a breath again. Then the pain in my chest grew terrible and after about thirty minutes—at least it seemed that long—I gradually lost consciousness. It was just like going to sleep. I don't remember anything until they brought me to and told me it was twenty-eight hours later."

John hadn't mentioned the dog but we were both thinking of him. "How much would you take for Pepto?" I asked him.

From where he was sitting, the watchman reached down and grabbed the animal up in his arms. "There's no money in the world that could buy him," he said, when he could talk.



"Will you take a travelers' check?"

Electric Lines:

PANTOGRAPHS DOWN!

HARRY H. HARRISON

PAT McGRATH was sore. He spat contemptuously against the weather-beaten side of the three-car electric train. With all those troop movements over the main line, he had to get stuck as a *motorman*! All because a dimwit of a conductor had seen fit to turn him in for making up some lost time. What did they want him to do, poke along, observing all out-dated speed restrictions, or bring his run in on time? The college-bred trainmaster had impressed upon him the fact that if he were again turned in, the road would manage to get along with-

Pat saw burly Nate Smith hit the ballast, fighting mad

out his services, and that was final, period.

Was there no justice at all? After so many years of back-breaking work trying to keep steam up in an engine with the real estate that passed for coal on the River Division, he was promoted to engineer; but was barely able to hang on as extra fireman for a long time.

To top it all, there was Eddie Clarke, conductor of this run. Of all the lousy, sour-pussed conductors that ever harried a hoghead, Clarke was by far the worst. Pat had caught this "turner-inner" many a time during his years on the River Division. He had heard many a hoghead bawled out to a fare-thee-well by that biting tongue.

Clarke came out of the dispatcher's office. He was a little man, thin and pallid. Pat's six-feet-four of sturdy frame loomed

above him like a giant over a pigmy. Clarke had a fistful of train orders in his hand and he shook his head pityingly as he looked at Pat.

"Railroading has sure gone to hell," he rasped, "when they put thick Micks like you on the right-hand side. All brawn and no brains; good with a shovel, maybe, but an engineer? Phooey!"

Pat felt the color rushing to his face, but before he could say a word, the whirring thump-thump of the air pumps cutting in caused the words to freeze in his throat. Damn these electrics! Generators humming like transformers all the time, and those noisy pumps cutting in at the most unexpected times. He snatched his copy of the orders out of Clarke's hand, whisked out his watch, compared time with Clarke. It lacked six seconds of 3 a.m. He turned away to climb into the cab. He couldn't trust himself on the ground beside Clarke.

This was to be Pat's first trip in the electrics, for it was only recently that the company had done away with motormen and put the front-end jobs on the enginemen's board. Pat, along with the other enginemen, had qualified because a bulletin from the superintendent's office read that all runners had to qualify on the electrics. After he had done so, however, he never so much as set foot on one.

Pat wished now that he had paid a little more attention to the instructor during those qualifying trips, instead of regarding them as mere routine. For Clarke would like nothing better than to turn him in if he didn't do everything according to Hoyle. "All brawn and no brains," he said bitterly. "If that guy's an example of brains, count me out."

He went over to the left side and set the indicator to show 221, the train's number. Outside, a long troop train thundered through the yards. Pat shook his head and went back into his cab, trying to remember something the instructor had told him. Oh, yes, he had it now. Each of these cars had an emergency hand pump under one of those end seats, to pump up train line pressure if anything went wrong with the regular pumps. Pat snickered contemptuously. On those long drags and even on the streamliner he had handled, it would have taken a man many hours to pump up train-line pressure, even if they had been equipped with emergency hand-pumps. These streetcars!!!

That's just what they were. Streetcars! Down at Euclid, the far terminal of the River Division, they had used these cars for street and short interurban runs! The company had bought them, put high-speed equipment under them and were using them on this Sub-Division! Why, all they had done was to put in standard seats and wash rooms.

Now a noise at the rear of the train caused him to look back over the safety-bar. Tom Smith, the brakeman, was loading the last of the express aboard the "combo." Passengers from the connection which had pulled in from the north were straggling aboard.

Pat put his orders on the clip under the air gages and tried to make himself as comfortable as possible. These cabs were not built for comfort. Only a storm curtain to keep the weather out, and no arm rest for the luckless engineer. He even had to stoop a little to see ahead. Then he remembered how uncomfortable those student trips had been and cursed the ambition that had taken him from a comfortable fireman's job to the inside of a devil-trap like this.

Four loud, piercing blasts, the signal for the standing air test, sounded on the communicating whistle over his head. It made him jump. He hoped they wouldn't toot it any more than necessary; in a noisy engine or streamliner's cab it was all right, but in the silence of an electric it was too darn shrill. He applied the air and shoved the brake-valve handle to "release" at the answering signal from the rear.

He shoved the control lock into forward position, leaned on the "deadman" handle and looked back over the safety bar for the highball.

Clarke's lantern swung up and down. Pat stepped on the air-gong valve. It

clanged furiously. "We're off," he muttered, and shoved the controller bar to the second series position. Much to his surprise, nothing happened. The train moved not a hairsbreadth. He stepped harder on the gong and shoved the controller bar clear over against the post. Still the train stood still! "Wh-what the hell!" he stammered as he looked helplessly around.

Charlie Vincent, the leader electrician, came dashing up with Clarke at his heels; a continuous ringing of the gong was the trouble signal.

"What's the matter?" Vincent shouted up at Pat.

"I've got her wide open. Look," Pat shouted, "she don't budge an inch."

Charlie scratched his head. "Is your overhead on?" he demanded.

Pat took his foot off the gong-valve and looked up at the overhead just visible in the feeble air gage light. The handle was in the "off" position. He grinned sheepishly as he locked the controller. Clarke shook his head pityingly as Pat shoved the handle to the "on" position.

The train began to rumble out through the Riverport yard. The run was a 180-mile loop, and Pat knew every inch of it, having fired over it many times. He'd bid in a freight run over it as soon as possible, for they were still steampowered. Only the passenger runs were electric.

He turned the headlight switch full on. The silver beam pierced the darkness ahead like a long, groping finger. He made the running brake test and scrunched involuntarily under the piercing blast of the answering whistle.

HE TURNED THE handle to full series position. The train picked up speed. The deep, organ-like purr of the motors took on a higher pitch as the train rolled smoothly and swiftly over the layout of switch-points and cross-overs.

Pat's wrist and forearm began to tire. It took quite an effort to hold that deadman control handle down, and there was no foot pedal to take over the responsibility as there was on a steamliner or a Diesel-electric switcher. To ease his cramped wrist he shoved the handle a little beyond full series position, held it there an instant then allowed it to slip back to first series point.

He gasped in surprise. Instead of slacking speed as an engine would have done with the throttle almost closed, the train shot forward like an arrow. The motor's hum sirened to a high-pitched scream and the train bucked and careened dangerously as it raced along.

Panic seized Pat for an instant. His thoughts galloped madly. They were past the tower and about to leave the yards. A sharp curve with a 20-mile speed restriction was dead ahead! He jerked his hand away from the control handle as if it were a red-hot piece of iron. They were at the curve! The brakes grabbed instantly, throwing Pat violently against the front end. Helplessly he fumbled, trying to lock the controller.

The train ground to a crashing stop. Clarke wrenched at the cab door, "What's coming off in there?" he shouted. "Lock your controller you dimwit!" He jumped up and down in anger.

Pat's numb fingers finally locked the controller, so that the deadman could not act. He glanced at Clarke apprehensively.

"What's the idea of racing through the yards!" Clarke exploded. "Want to turn us over?"

Pat's voice was shaky. "I—I don't know", he said, "I wanted to slow down, and this juice train began to run away instead."

Clarke resorted to the pitying shake of his head. When he spoke again, he exaggerated each word as though talking to a child.

"When you want to slow it down," he said, elaborately, "you shut off the juice. Don't just put the handle back in series, because once you open 'em up, these red electrics will keep picking up speed as long as the current is on."

"I—I'd forgotten that," Pat said humbly. "I haven't run one o' these since I qualified."

He whistled out a flag as the pumps be-

gan building up train-line pressure. It would be several minutes before pressure would be equalized so that the brakes could be released. Clarke stood there glaring at him.

As soon as the brakes released Pat whistled the flag in. The brakeman swung his lights in a highball and Pat pushed the controller bar. It did not move. He pushed harder. The thing was stuck. He glanced up at the overhead. It was on.

"Unlock your controller," Clarke's voice fairly dripped sarcasm. "Perhaps baby would like a nurse—!"

Pat growled and shoved the lock forward. Clarke went back into the car shaking his head.

The train swung around the curve past the roundhouse and out into a quiet street in the outskirts of the city. Pat groaned. Hardly out of the yards yet, and so much trouble already.

The headlight beam played on street intersections, vacant lots and darkened houses as the train rolled slowly along. The 20-mile speed restriction held clear to the city limits at the foot of Graham Hill. At the foot of the hill Pat shoved the controller against the post. The train shot ahead. It took the three percent grade at better than 45 miles per hour. Steam trains would have hard work making it at all. Pat felt a grudging admiration for the electrics.

He still held her wide open on the gentle downgrade beyond the hill. They must make up the time lost in the yards. The hum of the motors rose to a ringing scream. The sharply syncopated clickety-click of wheels over rail joints became as steady as a snare-drum's roll as the swaying train picked up speed with every turn of the wheels.

The rays of the headlight pierced the darkness, playing now full on the racing roadbed, now slowing in its sweep as the train lurched around a curve, lighting up the countryside or streaming along the sidewalls of a cut.

Occasionally, arcs from one of the pantographs lit up the surrounding darkness with brilliant flashes of light, making visible even the shadows of pebbles along the roadbed.

Pat was thrilled with the speed. These electrics could step almost with the fastest streamlined engine or Diesel-electric. But he felt lonely in the narrow cab. It was nothing like a steam engine. There was only darkness and strange sounds.

Instead of the familiar throttle and Johnson bar, there was only that long controller bar to manipulate; it held him prisoner as if he were handcuffed to it. If he so much as relaxed his pressure on it, the brakes would immediately go into emergency as he had already discovered.

The silence of the cab was suddenly shattered by a long piercing blast from the communicating whistle. It caught Pat unawares and made him jump. He almost let go of the control handle. He shuddered at the narrowness of his escape from another misfortune as the long blast was followed by a short one. One more accident with that controller and his goose was cooked for sure.

He answered the "meet" signal with the whistle, its deep, authoritative "Who —o—o—! who!" sounding faint and distant to his ringing ears.

They were nearing Hazelwood. He shut and locked the controller. The train could coast awhile. He rubbed his cramped wrist. The Hazelwood powerhouse, scarcely visible, flashed by. A train on the siding echoed the passing for a brief instant. They swung around a curve and started up a slight grade.

Pat glanced at the clipboard and tore off the order covering the next meet with 725 East. Then he unlocked the controller and turned on the juice again.

Then the very thing he had dreaded happened. For an instant, he imagined he was in the cab of a Diesel-electric—his last run had been a round trip on the streamliner. Without thinking, he reached quickly for the throttle to speed up the Diesel engines so that their pace would synchronize with the motor speed.

Of course, there was no throttle here and a cry of surprise escaped from his lips as his hand smashed into the brake-

valve handle, throwing it into emergency. In vain he whipped it into release. The brakes grabbed violently and the racing train again ground to a rough, jolting stop. Pat swore furiously under his breath as he locked the controller.

He looked up to see Clarke already beside him. Clarke's hands were on his hips and his face was working strangely as if he were trying to say something, but was too choked with rage to do it.

PAT RUBBED his knuckles, skinned by contact with the front wall of the cab.

Clarke finally found his voice. "You call yourself a locomotive engineer," he barked. "Why you couldn't even run a baby carriage, you—you—"

"It was an accident," Pat said lamely.

"Accident!" Clarke snorted. "Accident! That's all you know!"

He strode away angrily. Pat glowered darkly while he waited for the train-line pressure to build up. He knew what the conductor had left unsaid. The middle car was a trailer, with no air pump, which put an added strain on the two pumps in the train. If the train-line pressure were to fall below 35 pounds, the pantographs might fold up and in this hilly country, that could easily cause a disaster.

Daylight found the train racing along through the open countryside, past orchards and cornfields, stopping now and then at wayside stations to pick up and discharge passengers, mail and express. Pat watched his controls like a hawk. There must be no further mishaps.

He was chilled through by that cold wind whistling through the cab, for he had to lean out over the safety bar in order to see both sides of the roadbed. He could not pull the storm curtain down and he had forgotten to draw a cab heater before the start of the run.

The track, which had been following the general course of the river, now swung away and a sudden lurch told him that he was entering Altamont Pass with its curves and grades. He pinched down on the speed as they struck a reverse curve.

They squirmed through the deep, gloomy pass and neared Black Granite, an order-board station. Pat saw that the board was up. Although he knew he was alone he shouted "red" as he shut off power and applied the air.

"Red!" a hoarse voice answered.

Startled, Pat looked around quickly. Clarke was standing beside the partition.

"I sorta thought we'd pick up a "19" here," Clarke said sourly. "Thought I'd be on hand in case you passed it up."

Pat did not reply, but scowled angrily. As they neared the station platform, the board went green. The operator came out and swung a highball. Pat answered with two whistle blasts and leaned down over the safety bar to catch the order hoop. He glanced back along the train and saw the brakeman leaning out of the "combo" door to catch his copy of the orders from the operator's hand.

Pat made another light application of the air. He doubled down a little closer to the safety bar and thrust his arm and shoulder out a little farther. "Be sure you lean out far enough so you don't miss the hoop," Clarke said. Pat turned angrily, but a stinging slap on his upper arm stopped the "Oh yeah," that was already on his lips. The hoop instantly slipped clear up over his shoulder, and he thought that he felt the safety bar raise and lower a little under his arm. He tried to straighten up, but found he couldn't for the handle of the order hoop had caught in the safety bar lock!

He was trapped. He could not free his arm without using his other hand, but he could not take it off the control handle because he had forgotten to lock the controller when he had shut off power. He strained his massive shoulder against the hoop, in an effort to break it or free its handle from the safety bar lock, but the wicker hoop resisted all his efforts.

Clarke saw Pat's predicament and his disgust was plain to see. With the air of a martyr who had lost all faith in mankind he went to Pat's rescue.

But Pat did not wait. He could not stand being doubled over the safety bar,

and he let go of the control handle long enough to tear the hoop from his shoulder. Swift as was his movement, it was yet too slow. Before he could slap his hand back on the handle the brakes had acted. Crashing and jolting, the train ground to a stop.

For an instant Clarke was speechless. He grabbed his cap with both hands and pulled it down over his ears. He pounded the side of his head with his fists.

"You . . . you big lug!" he exploded at last. "What'cha trying to do? Why, you . . . you . . . " he shook his finger violently under Pat's nose. "One more stop like that and I'll take the train in myself. You ain't fit to pull a kid's express wagon!"

Pat started to say something but thought better of it. Instead he flung that order-hoop down on the foot-path; the operator could find it there.

"Come on, say it!" snapped Clarke. "Another accident, hey? But remember what I say. Do that again and I'll throw your fat carcass out to the ravens. That's final!"

Controlling himself, Pat looked at the order. It read:

Riverport, May 10,

C & E. two-hundred-twenty-one. Motor number 913.

C & E. eight-hundred-two. Engine number 1819

Number eight-hundred-two, engine 1819 will meet Number two-twenty-one, Motor number 913 at Devil's Gate instead of South Lynn.

Number eight-hundred-two will take siding.

T. C. Supt.

Complete 5:41 A. M.

Pat drew his breath sharply. "The plug is sure off the advertised today," he said.

"Thanks for the information," Clarke answered. "I'm glad to see you read at least." He strode away angrily.

PAT PLACED the order on the clip. He cast a bitter glance at the control handle. It would never get away from him again, no matter what happened. The air gage climbed slower than usual, it seemed. He pulled out his watch and saw precious seconds tick by. He half started out of the cab to ask Clarke whether they should investigate those air pumps, but thought better of it. The pumps were slow at best and he was deep enough in the doghouse now.

"Maybe I oughta help out on the hand-pump," Pat muttered sarcastically, as he finally started the train. He resolved to watch the air-gages closely and stop at the least sign of trouble.

The train entered the worst part of the pass: a long downgrade, twisting and squirming snake-like between towering cliffs. The breaking dawn was cloudy, and a dense, swirling fog made it almost as dark as night in the high-walled canyon. To see anything at all, Pat had to lean out over the safety bar, for the front glass was damp and not equipped with a wiper.

Blue with cold, Pat had put up with it, for, with the storm curtain down, he might as well not be at the controls at all. There was one good feature, however; since the train was coasting the controller was locked and he only had the brake-valve to manipulate. He was using it constantly, for speed was restricted around the many curves here.

They swept past the long South Lynn sidings, the regular meeting point with 802 and Pat wondered what could have made the local freight so late this morning. If she was really filled out, they'd have trouble getting her on the shorter Devil's Gate sidings.

The further switch-light streaked by like a frightened rabbit, and Pat made a rather sharp reduction to cut speed for the series of curves ahead. He released the air as they straightened out, but again had to apply it, for they picked up speed too rapidly and the headlight beams picked up a granite wall dead ahead.

Pat gasped in surpise. The brakes grabbed violently enough to throw him against the front end. He glanced at the brake-valve. The handle was in light service position. A quick glance showed that the controller was locked. "What the devil?" he muttered in bewilderment.

"How'd I make such a heavy application?" He shoved the handle to release; speed stopped dropping so rapidly. "That sure was a close one," he muttered. "If she'd big-holed on me again—"

A glance at the air gages froze the blood in his veins. He whipped the brake handle into emergency. Nothing happened, except that speed increased a little. "I've done it now," he blurted as he realized that he must have used air faster than the pumps could supply it. Train-line pressure had dropped below thirty-five pounds and the brakes had gone on automatically.

The headlight flickered on and off. The pantographs, with insufficient air pressure to hold them against the trolley-wire, were temporarily kept from folding up by their springs, which were not powerful enough to hold them very long.

Speed increased. Pat reached for the whistle to blow for brakes. No sound came out. He stepped on the gong valve. It was silent. He snapped the control lock into reverse. Nothing happened. He opened up the controller a few notches. The overhead blew. He snapped it on and held it while he again reversed the controller. There was a blinding flash and sputter through the fog as a main motor fuse blew out.

He locked the controller and pitched into that small hand-brake which stood like an ornament, beside the brake-valve; he whipped its handle around furiously and tried to think.

He was in a spot. A runaway on this hill! At the foot of the grade was Devil's Gate. A little beyond Devil's Gate was an upgrade. He knew they'd stop there—if they were still on the track, but somewhere in between was 802. If that freight wasn't in the clear now—!

"Oh, Lord!" he groaned.

He had wrapped up that tiny hand-brake as tight as possible, yet their speed was increasing. He had to get at that big hand-brake over on the left side of the platform. He dashed at the cab door. It stuck. Madly he struggled with it. It gave at last and he hurled his 240 pounds of bone and muscle into the vertical wheel brake. He kicked in the dog with his foot and whipped that wheel around. If he could only set the front truck brakes in time!

Furiously he worked. Tighter . . . tighter . . . then suddenly, snap! The wheel broke off in his hands.

A cry of despair broke from Pat's lips. Perspiration stood in beads on his forehead. "Ha—hand pumps!" he gasped. "Under the seats!"

He threw down the useless wheel and sprinted toward the closed section of the car. He flung open the door and strode inside. Frantically he flung aside the hard cushion of the corner seat; nothing but some old newspapers under it. The pump was at the other end of the car.

Passengers stared at him curiously as he raced along the darkened aisle. He caught himself on the back of a seat as a sudden lurch almost sent him sprawling. The train was sliding downhill at a dizzying speed now.

Ah! Here it was. He tossed the seat cushion into the aisle, exposing the hand-operated air pump. He wrenched the valve open and leaned into the handle with both hands. He began working it up and down as if he were pumping a handcar uphill.

The brakeman came on the run. "Where's Clarke?" demanded Pat hoarsely. "Get him and set up the handbrakes. I'll pump enough air to keep the pantographs open. Sit down!" he roared as his glance fell on a standing passenger. "Everything is under control. Just gotta get a little more air."

THE PASSENGERS looked at each other uncertainly. They shot quick glances at trolley-poles streaking by like fence-posts along a highway. They clutched desperately at seat-backs and arm rests to keep from falling as the train lurched and swayed wildly in its downward plunge.

Pat worked the pump handle up and down furiously. Muscles bulged under his jumper sleeves. Sweat ran down his face in rivulets. Up, down, up, down . . . He

must build the train line pressure up to 35 pounds. That would keep the pantographs in contact with the trolley-wire, and the regular motor-driven pumps would work steadily until the brake pipe was fully charged. Flanges shrieked and screamed. Heads snapped as the train careened around a curve.

Suddenly Pat caught a new note in the roar of the coasting train—a whinning and groaning. Those handbrakes the brakeman was setting up—they were beginning to bite. "Thank God! moaned Pat. "A few minutes more—."

Never had that handpump been worked so furiously. Pat was a demon. With set jaw he threw every ounce of his prodigious strength into his work. His arms worked up and down like pistons. The pump panted and wheezed under the onslaught.

The handbrakes were definitely taking hold. A great hand seemed to be tugging ever so slightly at the rear of the train. There were momentary, almost imaginary, hesitations followed by even swifter plunges ahead.

Clarke limped into the car. His face was bloody and there was a long tear in his usually immaculate uniform coat. "A trunk fell on me—" he began.

Pat saw him teetering unsteadily at the door, trying to wipe the blood from his face. He had no way of knowing how much pressure had been built up; but he did know that the train must be near the bottom of the hill and perilously close to the Devil's Gate siding.

It was time to act! He straightened up, grabbed Clarke and forced the conductor down to the pump. "Let's see what your brains can do with that!" he roared. "Maybe you'll wish you had a little brawn to go with them!"

He turned and rushed for the cab, bowling passengers right and left out of his path. He spurted ahead even faster as he flung open the door to the smoker, for a sharp "BANG-BANG," smote his ears, almost like one single explosion.

Those bangs were caused by two torpedoes, placed two rail-lengths apart, probably by the brakeman of 802. He gulped in terror as he threw himself into the cab. If the brakeman was out flagging, it could mean only one thing: 802 was having trouble down at the siding.

He saw that he was at the foot of the grade. The fog was higher, and he could see for some distance ahead. Everything seemed clear.

Without looking at the gages to see how much air there was, he whipped the brake-valve into emergency. "Ah-ah" he gasped as the train buckled like a stumbling horse. There was enough air in the train-line to do some good. Windows rattled like castanets as train speed dropped.

The Devil's Gate siding and house track charged into view. They were full of cars. "I'm in luck. 802 is clear," Pat shouted as he tore off the order they had picked up at Black Granite.

His laugh froze in his throat as he glanced ahead. 802's brakeman stood beside the further switchstand, desperately swinging a washout. A red fusee burned beside the track.

"BANG!" They hit the single torpedo that means "Stop!" Pat ducked as the brakeman flung his lights at the front of the train, just to show the brasshats that said brakeman was on the job in case of an investigation.

Pat gripped the valve handle even tighter as a block signal showing red zipped by. Ahead, staring him in the face was Engine 1819.

He saw a column of smoke spurt from her stack as her drivers slipped badly. He knew that good old Nate Smith, the engineer had reversed her. But could he keep away from this onrushing electric?

Speed was dropping all the time, but Pat knew that it would require nearly a mile to stop his train in spite of the upgrade here.

He stared fixedly ahead as the silver smokebox of the 1819 came closer and closer. The sharp bark of her exhausts echoed in his ears.

The distance had dwindled so much that Pat could count the number of bars in the 1819's pilot. He knew that if car and

engine came together at the rate they were going, he'd probably never come out of it alive.

He grabbed the safety bar, thinking of jumping off, then instantly decided against it. He'd ride his train down to the bitter end.

With a convulsive heave, the electric ground to a stop. Pat drew a few deep breaths and clambered out of the cab, to the foot-path.

As in a dream, he saw the 1819 move back toward him and stop within a yard of his train. He saw burly Nate Smith slide down the grab-iron and stride up the foot-path toward him.

"What's the big idea?" Nate roared. "Are yuh tryin' to play Casey Jones?"

"No!" Pat answered calmly. "I was only trying to give Eddie Clarke a little excitement."

He reached into the cab for a new fuse. He'd have to insert it before the train could move.

He noticed now that there were only two cars and the caboose behind the 1819, and that Pop Deyo, the conductor, had come beside his engineer.

As Pat went into the cab to shut off the overhead, Eddie Clarke came along the foot-path, gasping and perspiring from his effort at the pump.

"We really wuz filled out this trip," Deyo said to Clarke. "I figgered on whip-sawing by you down yonder, but you came chargin' down the mainline like you wuz the *Silver Streak.*"

"We lost our air back a ways," Eddie Clarke replied.

"Yeh, we did," Pat said, turning to his conductor, "and I suppose you'll turn me in so fast that it'll make my head swim. Go on, say it!"

"I'll do nothing of the kind," Clarke answered. "Anybody with your dumb luck can take the controller of my train any time he wants it."

"Yeah," growled Pat, as he removed the dead fuse from its box behind the front truck. "If I'm ever called again for one of these man-killers, the callboy will find me bedridden with yellow jaundice."

Carbarn Comment

conducted by

STEVE MAGUIRE

SEVERAL instances of pleasant cooperation extended by electric railways to fan groups have recently been brought to our attention. In the Midwest, America's biggest interurban line, the 500-mile Illinois Terminal Railroad, has donated one of its unmodified heavy wooden interurban cars, Number 241, to the Museum of Transport at St. Louis.

In a ceremony in the St. Louis subway terminal of the ITR, President H. W. Ward handed title to the fine old car to Dr. John P. Roberts, president of the Museum group, on July 25, 1950. Car 241 was one of the last two of its type on the road. A classic in interurban style, it was built in 1908 by the American Car & Foundry Co. for the old Illinois Traction System, predecessor of the Illinois Terminal Railroad. The car is unchanged structurally from its original condition, being one of very few ITR cars which has not been changed to conform to present road requirements. It still sports its stained glass window arches and open clerestory. The Museum group plans to restore the original Pullman green coloring with gold striping, making it a really authentic relic of the days when it ran on the McKinley System, as the traction line was once known.

Following the ceremony the car was moved to the Barretts Station location of the Museum at Kirkwood, Mo., via the

H. R. Bates

Cleveland Transit System's 4205, ready to pick up Union Station passengers

Terminal Railroad Assn. and the MoPac lines. The MoPac hauled it at the rear of a local freight—much to the consternation of onlookers along its line through the complicated network of the greater St. Louis area.

Ernie Plant, president of the Lower Mainland Railroad Club, 3226 East 26th Ave., Vancouver, B.C. writes that the British Columbia Electric Railway has been extremely good to railfans, having on three occasions donated cars for the use of the club for fan trips, without charge of any kind.

On one occasion BCER loaned the group a car to roam around in all day on the North Vancouver trolley line which had been abandoned three days before the trip. On a later occasion, BCER provided a tour of the Vancouver city lines in a

Vancouver lost its picturesque open observation cars on September 15, 1950

PCC car, and finally, it let the fans have interurban Car 1301 for a ride out to Marpole, New Westminster and for the long interurban run to Chilliwack, nearly 80 miles distant. The Chilliwack trip consumed 12 hours in all and the riders didn't have to pay a cent, not even for the wages of the crew.

Ernie tells us that the Chilliwack line, although scheduled to be Dieselized, is still operating the big red interurban cars and they made their last run, much to the sorrow of the juicefans who so often found pleasure in their tours.

In the East, the Capital Transit Co. gave Washington fans a treat by taking them for a day's outing around the District of Columbia in its old 4-wheeled trailer train, which was also used the year before on a similar trip. The ride was in celebration of Transit Progress Day, September 10, 1950 and was run in coopera-

Nine years ago the Niagara, St. Catherines & Toronto line from Thorold to Port Colbourne hummed with interurban traffic. Preston built the big maroon-colored cars comprising this juice fan Special

there is no definite word on its future as yet. Freight is being handled by four 600 hp. Diesels, and by the reliable electric motors. Local rail service in Vancouver is slowly being changed to buses and 96 cars have already been scrapped the past year, with more going as lines are pulled off.

One unique feature of BCER service is now a memory—the open-top sightseeing observation trolleys that toured guests through the city for many years. With the 1950 abandonments, these cars can no longer cover the points of interest in the circle tour, and so, on September 15, 1950 tion with the Transiteers, a local fan group. Your Editor was on the 1949 trip and can vividly recall the unique thrill of riding an old-fashioned trailer train of two 4-wheelers running between modern PCC cars on busy Washington, D.C. streets, much to the amazement of onlookers.

* * *

LAST reports on the Niagara, St. Catherines & Toronto Ry., which was featured in our June, 1950 issue, tell us that passenger service is still being given by interurban car on the line from Thorold to Port Colbourne. Chas. Black, Newtonbrook, Ont., says that it is not possible to

Above: 1907 Brill combine at Cape Porpoise, Me., from collection of O. R. Cummings.
Below: Chicago Tribune view of Laramie St., Chicago El Station

say exactly when this, the last passenger service, will fall to buses.

Five passenger cars were still available to give service on the single line, although only two were regularly used. Cars 67, 80, 82, 83 and 130 constitute the last passenger roster. Express service given over the route was carried on by motors 40 and 60 and in addition electric freight service on the whole system is hauled by nine juice jacks. Quite a come-down for a road which once operated seven electric routes.

MORE very valuable and thorough treatises on electric lines of years ago are being compiled by fan groups. Probably the Indiana Railroad was as interesting a line to juicefans of the last generation as any other road in the United States. Back in 1941 the Central Electric Railfans Assn. published a 16-page history of the line which became a prized possession of many a fan and copies of the issue have since brought very high prices.

We now have available from the same CERA group, a much more comprehensive volume on the Indiana Railroad, and one which members of CERA have spent a long time in compiling. The new, greatly-enlarged issue is over 60 pages in length, with maps and rosters and it represents a real prize to railfans who knew well the 400-mile interurban system of the Hoosier state. CERA members received copies of this issue as part of their membership. For extra copies, write the CERA, Box 503, Chicago 90, Ill.

Another similarly thorough treatise has been published by the Connecticut Valley Chapter, National Railroad Historical Society. This one will bring joy to the hearts of New England fans, for it's the all-time story of the Atlantic Shore Line Railway, one of the most popular of the juice lines in the State of Maine. Written for the most part by O. R. Cummings, the history contains many fine illustrations of the road's equipment from the opening of the original line of the Mousam River Railroad on July 12, 1892 to the end of juice operations on the York Utilities Co., its last segment, on July 7, 1949. The 45-page bulletin can be obtained from Roger Borrup, Warehouse Point, Conn.

We learn that another NRHS chapter, this one in Syracuse, N.Y., is commencing to issue a series of printed articles covering the steam and electric roads of its area. The first issued is the story of the Marcellus & Otisco Lake Ry., a steam road in upstate New York, which at one time started electrification even to the extent of having wire erected, but never completed the job. The M&OLRS story fills eight pages and copies can be had from the Syracuse chapter of NRHS, 201 Crippan Ave., Syracuse 5, N.Y.

TEMPORARY changes will be made in Chicago affecting the Garfield Park "L" line and the Aurora & Elgin which operates over its tracks, as a result of the construction of the Congress Street super highway which will be carried on from 1951 to 1954, from present indications.

The elevated cars and the A&E cars will leave the present elevated structure at Sacramento Avenue and travel along Van Buren Street for a distance of 2½ miles using overhead trolley power, to Racine Avenue, where they would reenter the elevated track. The portion of Congress Street from Racine to Sacramento Avenues would be reconstructed with the elevated removed and a depressed portion in the center of the highway for the train.

Present indications make it seem probable that this will be started very shortly. The plan is considered superior to a costlier one requiring erection of temporary elevated tracks over Van Buren Street.

Below: **Vestibule shot. Car 61 of the NStC&T warps around a curve at Thorold, Jct., hard on the heels of cameraman-carrying Special shown on page 97**

He Started Modeling Erie Hogs; Now New York Central Pays His Grocery Bills

FROM SCALE TO PROTOTYPE

FOR MORE years than I like to have my wife remind me of—I am 37—I have been reading the True Tales in *Railroad Magazine*. Most of these tales have come from oldtime operating men, which is as it should be. The oldtimers can remember when a railroad was a railroad, not a multi-tracked transportation factory. And the men who run the trains see most of the odd ones.

But perhaps you readers would like to hear from a younger man occasionally, a fellow who has to hang on to the assigned jobs by the skin of his store teeth. Kids who are thinking about railroading as a career might like to get the opinion of an employe with about six years' rights. And, I assure you, a towerman sees plenty from his upper windows in that time. So, here goes.

SAMUEL E. HERRINGTON

as told to

WILLIAM C. KESSEL

Like many—or most—railroaders, I come from a railroad family. My father, John E. Herrington, went to work for the Erie in 1898; and after arduous years on the line from Avon to Painted Post and from Batavia to Attica, he became a section foreman. He taught me things about section work, you may be sure. Then in 1937 he left the big road and joined the little Genesee & Wyoming. Until his retirement last year, he supervised bridges and buildings, and maintenance-of-way for that New York State shortline.

To the natives, the Genesee & Wyoming is the "Gee Whiz." A freight-only industrial road, it hauls salt from a mine at Retsof to the Lackawanna at Greigsville, to the Pennsy's Rochester Branch at Retsof Junction, and to the Lehigh Valley, the Buffalo, Rochester & Pittsburgh

(B&O), Erie, and New York Central at P&L Junction. The latter is near Caledonia. Traditional motive power has consisted of Porters, but the internal combustion engine is now heard.

I have an uncle on the Erie, Dan DeForest. There isn't any Erie passenger schedule, far as I know, which hasn't seen him fanning the air on the business end. He went railroading about the same time as my Dad did, and his run as engineman was on the Susquehanna-Hornell portion of the fine main line.

Of course, I absorbed rail lore. I still have some old juvenile books about railroads, which today are rarer than Horatio Alger's success stories. I built model trains at any early age you can think of, or so it seems to me. I still build 'em, in fact I'm now working on the Matt Shay triplex, and have a Camelback articulated running around a layout. Believe it or not, it was model building that helped get me my present job jerking switch levers —but more of that later.

From the above, what do you think my pet road has always been? The Erie, of course. I've got lots of company in my love of the route of high wide loads; Vince Ryan, Vic Neal of Wellsville, Jack Alexander, to name just a few. I still have a check from that road—still uncashed—for five cents. However, my groceries have been bought by a competitor of the Erie, the New York Central.

But before I could work for a steam road, I was a trolleyman. At the age of fourteen, I was on the payroll of the Batavia Traction Company. My job was to change poles during Fair Week; there was no time that week to let the platform men drop down to the ground or even to reach through the windows. Boys were hired for that task, and five bucks bought a lot of merchandise in 1925-6.

I HAVE a confession to make: I was an experienced trolleyman when I was hired at the fairgrounds. Town custom gave a free ride to the kid who performed that onerous task for the crew, and street fights were not uncommon as dozens of boys competed for that privilege. Young Herrington broke one rival's eyeglasses when his grip on the rope was disputed. Maybe the crew could have changed poles themselves faster, but the cars were never in a hurry, except during the Genesee County Fair.

Was I experienced in running cars? Inasmuch as the last Batavia trolley ran in April 1927—I made the last trip and walked two and half miles back home—I guess I can admit that I cranked up the "coffee grinders" at the age of fourteen whenever a friendly motorman thought himself free of official surveillance. I wish I could give all the juicefans the dope on the old cars, but I can't. Maybe someone else will recall the details.

I wanted to go firing for my pet road, but I didn't have 20-20 vision without eyecrutches, and that was out. I had a nice delivery business in Batavia, N. Y. with some free time on my hands in the evening and during the wee hours. The New York Central allowed that they could use help at the Batavia enginehouse and that Herringbone was "it." That was in March 1938. It had taken a long time to get a railroad job with any degree of steadiness; but at last I made it, though technically an extra man.

One incident at that little enginehouse remains in my memory like a nightmare after all these years. We had four engines regularly at Batavia, and two of them were involved. One night *Mikado* 1354 from the Peanut East was on the storage track, which terminated at the brink of the drink; and USRA *Mike* 1865, a heavier engine used on Peanut West, was behind her. That was just exactly the reverse of the usual procedure but one of them had been late in returning to her nocturnal roost. Therefore, I wanted to shuffle them so that 1354 would be ready to go to Caledonia—or it may have been Canandaigua in those days, the line having since been cut.

I boarded the 1865 and gently opened the throttle. Nothing happened. I tried again, and still hadn't fed her enough

steam. Then I got vicious. She responded, all right, only too well—and forward. In my confusion I must have grabbed something that I should have left alone. I sought the bighole as we crashed into the 1354. Well, by good luck nothing serious happened. The couplers met and the 1354 also halted, but the pilot was very much in contact with the chain that was the only barrier to an 18-foot drop. I don't suppose I'm the only novice hostler who had this experience, but my partners-in-misery will sympathize.

Then I was employed in the Central's enginehouse at Suspension Bridge, Niagara Falls, N. Y. and later at Rochester. Shays were kept there, to work the sidings along the gorge of the Genesee River which indents the city quite deeply. The circumstances under which I relinquished my duties there may be interesting.

I was a watchman and had to tend the engines. That was my first duty, of course. But the place was heated by thirteen stoves—fortunately I'm not superstituous—and each stove had a cast-iron pipe extending through the ceiling. Those little infernos needed more care than the engines. I'd come on at midnight normally and take care of the locomotives and then the fitful thirteen heaters. By 2 a.m. I was ready for lunch, and the boss was a stickler for keeping proper mealtimes. As it turned out this was my undoing.

On one particular December night, I came on duty to find the place a mess. My predecessor hadn't held up his end, and I had to scurry around to restore order. It was 3:30 a.m., therefore, before I felt that things could run themselves for a while.

So there I am, sitting complacently in the cab of a Shay, lunch in one hand and the newspaper in the other. Simon Legree sneaks up behind me and asks what-in-hell-is-the-idea of sleeping on duty. I pointed out, reasonably enough, that I could hardly have been sleeping with a half-eaten sandwich in one hand and a paper in the other. When he reminded me that lunchtime was 2 a.m. and not 3:30, I told him that it had taken me three and half hours to get his roundhouse respectable again. But he wouldn't listen. He raised the point that I had neglected my work and then led me to one of the thirteen stoves which was becoming as cold as his heart.

Naturally he wouldn't believe me when I told him that I had left it nicely aglow just a few minutes before, and he angrily slammed the door of that heater. Well, that did it. All thirteen pipes which had reached to that ceiling like a mighty Wurlitzer clattered to the floor with the effect of lightning-struck trees. Timber!

Jack Burns was general foreman at the time. I believe he has received some nice promotions since then. Well Burns and I parted company the next day: December 7, 1941. Pearl Harbor Day, remember?

TWO YEARS later to the day, December 7, 1943, I went on the New York Central payroll once more. That was the start of my present job: signalman on the Buffalo Division. How I got that job is quite a story, I think.

Remember, now, I have built models for years. I was active in the Model Railroad Club of Rochester, the Niagara Falls Model Railroad Club, and other fan groups. I also had a membership card in the National Railway Historical Society—and don't make the mistake of underestimating the value of such railroad clubs to the carriers themselves, by the way.

The late Mr. Singer was master mechanic, and Mr. Hentz was his assistant. (Hentz had an illustrious wartime career with the Railway Battalions.) Both these men were very good to me; war or no war, I had free access to the facilities to measure or to check details for my models. Some few men took advantage of the war to save themselves the inconvenience of helping legitimate and patriotic model-builders, but not around Buffalo. C. A. Raymonda was division superintendent, and he also realized the advertising value of a NYCRR *Mohawk* on a model layout. All these official were always fine to me.

So one day Leo Conway was looking over a model engine of mine, and he called

in W. H. Newman. I knew that Newman had supervision of the signal system, towers, and so forth, for the whole division, but I was caught off-guard when he asked me how I'd like to be a signalman. I told him that I'd rather ride past towers than sit in 'em, but that my vision was largely dependent upon my optician. My aim was still to fire for the Erie, but I assured him I might even let the New York Central have my services with a stoker valve.

He ignored that and asked me whether I'd ever been in a tower. What a question to ask a railfan! I didn't want to involve friendly and/or lonesome signalmen by admitting that I'd been in 40A, 40 and 36, and had helped pusher firemen up Byron Hill east of Batavia for practice. So I hedged. Newman knew very well that I'd spent some pleasant hours looking out from his cabins.

Well, to make a long story a little shorter, on December 7, 1943 I became Signalman Samuel E. Herrington. I still am, and have worked just about every tower on the division.

Perhaps I'd better tell you a bit about the NYC's Buffalo Division. It is a terminal division only; like the Cleveland Division, for instance. Mainline trains are on it for only fifteen miles between the Syracuse and Erie divisions. Besides that main line and the Gardenville cutoff which keeps through freights out of town, there is a branch to Niagara Falls and Suspension Bridge (Buffalo Central Terminal to Suspension Bridge, 26.9 miles). Then, too, there is the Belt Line over which nickel-grabbing passenger trains used to run prior to World War I, which still keeps freight out of downtown. Some day maybe I'll write an article about it.

My first assignment was S.S.49A. This was lucky. It is one of the few Union Switch & Signal Towers, as most NYCRR towers are products of on-line General Railway Signal, and well-remembered S.S.40 had a similar machine. Well, I had no trouble there, but I was glad to finish my trick without hitting the jackpot as did some unfortunate op during Labor Day weekend of 1940.

Tower 49A is where the Pennsylvania crosses the NYC's multi-tracked main. Two tracks from the south converge into one which bumps across the Central to get to the Louisiana Street yards, and there are plenty of switches to permit interchange. The Pigtails (Buffaloese for the PRR passenger trains) back out of Central Terminal across that track, then head down the line to Olean and Harrisburg, and formerly to Oil City and Pittsburgh also. This fellow I mentioned above, let the day passenger, No. 570, into the inbound PRR track; the process of getting him back and over to the outbound Pennsy iron resulted in four first-class trains having to wait at his plant. To complicate things, no less than two railfan parties were aboard No. 570: over 200 fans from New York City's Railroad Enthusiasts going down to ride the Arcade & Attica, and a carload of Buffalo fans bound for Altoona and the Horseshoe Curve! Railfans enmasse are remarkably unsympathetic to erring working railroad men, and the laughter must have had the denizen of 49A chewing his own switch levers.

But that didn't happen to me, even though I was shifted all over the line. I learned towers in a hurry and was willing to post after hours. Posting pay is not likely to make a man rich, but it is an improvement over the old system of making men learn railroad jobs on their own time. That old attitude cost the roads many a good man, as other industries never asked men to learn their jobs gratis. So I knew a good many jobs; and I was willing to stick my neck out to try a job without too much study. The old-line conservatism was missing, and I believe that my bosses were grateful to have one man who would try.

ABOUT THE nearest I ever came to trouble due to unfamiliarity with a job was at the simplest tower—well, one of the easiest. It was "F." That is where the double-track line (part of the Belt) from Central Terminal and the Terrace (downtown) Station divides. One pair of tracks continues north past the NYC

Black Rock Station and goes to Niagara Falls and Suspension Bridge; the other pair curves drastically to the Grand Trunk's Black Rock Station, the International Bridge, Fort Erie and the Michigan Central. That Grand Trunk Station, just to be confusing, has no GT passenger trains regularly scheduled; just Michigan Central, Toronto Hamilton & Buffalo, and party GT-CNR moves. F's activity is limited to passenger trains and a few local switchers, for the law forbids freight trains to run through the Terrace. Freight comes into that spot from the Belt Line's eastern portion, unless it is classified as "shorttime stock."

So, there are a few waves of passenger trains, then a couple hours of quiet. A true pension job! But I should have known better than to judge a job by the external appearances. I ran into two messes at F.

Remember, now, that the first time I was called for that tower I warned the crew dispatcher that I was unacquainted with the place. In fact, I had trouble finding F itself. He accepted my waiver of familiarity—anyway he didn't argue. I had only a few minutes to talk to the day man, and he penciled out a little card with train times.

That evening it started to rain and the visibility was pretty poor. The Grand Trunk Station, whence come inbound MC and TH&B trains, is obscured by the GT-Wabash freighthouse; and the semaphore which demarcates the plant at F is barely visible from the tower. A little before 9 p.m., I saw a headlight creeping toward that mast and it was extinguished. A Grand Trunk switcher no doubt, thought I; the little Black Rock yard is full of them, with moves running west right on the Bridge. Nothing was due for several minutes.

Pretty soon, just about when the TH&B Line 380 was due, a trainman sloshed through the storm into my cabin. Politely enough, he inquired when the train might move. "About now," I told him casually. I didn't notice whether his buttons read TH&B or NYC—crews alternate, as do engines, with the Canadian Pacific contributing to the engine pool—but he was courteous enough to be a TH&B man. (If any Michigan Central conductors read this, I'm only fooling.)

I had no more trouble that night and I caught the same job next day. I phoned a friend who used to sell tickets at the Terrace, and told him about the TH&B. He said, "You damphool! The TH&B is always fifteen or twenty minutes early except on Friday. Then all the Canadian military is furloughing, and the train is about thirty minutes late. Michigan 344 may be five or ten early, too."

That may seem like a helluva way to run a railroad, but you must remember that the schedule times for eastbounds at Black Rock (GT) are arrival times. Departing passengers may board, but they do so at their own risk. Black Rock to Buffalo Terminal is a yard movement.

Later on I caught the day trick and tied up the railroad. Michigan 355 broke a knuckle while trying to get out of Black Rock (GT); that is a miserable curve, covering more than a right-angle turn, and I've often wondered how some of the seventeen-car trains ever start up on it. And everything except the shorter *Detroiter* has to stop, too; it is a customs-inspection border point. Now somebody will tell me that all trains don't actually come to a stop; but technically they stop.

How was I to know? I couldn't see through the brick freighthouse, and nobody told me that the engine was enroute to Ft. Erie to import a knuckle. So I let TH&B Line 375 creep into my plant. That wasn't too bad; 375 couldn't go anyplace anyway. But NYC 211 could; that was a Falls train. Result: No. 211 had to back and No. 375 had to run up the wrong MC track. (All right, I know that the GT really owns the iron, or is it the International Bridge Company.)

Nothing much happened when I was a leverman at the big three-man S.S. 48 which guards the east end of Central Terminal; nor at 51, 52, B, I, 55, 59, SP, RB, 47, 46, abandoned 45. But elsewhere . . . that's a different story.

I STAYED at FO for some time; every newcomer gets that. It isn't too bad a job, just a little ground-level affair on the Main Line West (but in Buffalo's limits), handling Buffalo Yard, although most of the freight hits either Gardenville or East Buffalo. But eight crews switched around there, there was a yardmaster, and the place is a madhouse. And there is one switch about a half-mile west of everything else; and that is a very cold walk when the wintry winds whine off Lake Erie. One passenger movement takes place there (besides the mere passing of the "Steel Fleet"): the Hoboken-DLW-Buffalo-Michigan Central-Detroit sleeper (and return) is interchanged at FO. Lord, I was tired from working FO and posting others for a while! So tired that I'd answer my home phone "FO."

But I returned to FO for several months in 1948, to walk off some gathering fatty deposits from my own Belt Line. The summer breezes were cooling; it was one of the nicest spots in town. When winter came, however, I was mighty glad to get back to an inside job.

"D" (Seneca) was interesting in that it took me from 10 p.m. until ten minutes after midnight to find it. The evening man instructed me for all of 60 seconds, but I made out. The traffic simply passes it, while the tower accommodates movements into and out of Seneca yard.

S.S. 50 gave me more than one scare. There was a broken rail, and nineteen reverse-track movements were authorized by train order that night. I didn't issue them, since I received the trains. But I'd given the track to Jack Stapleton in his capacity as maintainer and then Trainmaster Slavin walked in. "Okay, she's fixed," he said.

I reached for the phone, but then happened to think of a few things. "Who are you, anyway?" I inquired.

Slavin introduced himself, and I recalled that he was considered a new trainmaster out to make a name for himself. I reached for that phone again, then stopped in mid-air. I still wasn't satisfied. "I've always been told that once a track is given to a man," I said to Slavin, "he has to release it."

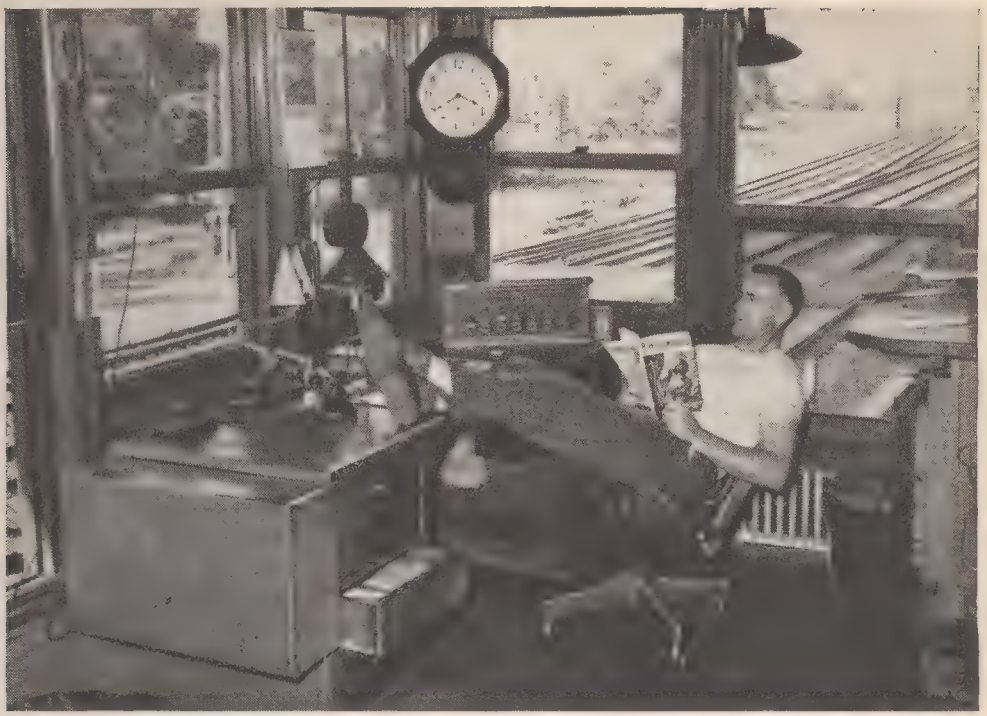
Well, I visited the boss next day, by invitation. I never heard any more about it, though. Maybe Trainmaster Slavin did; I wouldn't know.

A scare of a more physical nature came at "T." Tower T is on the Belt Line just north of Central Terminal, and several cans of casing-head gas plus some underground tanks containing the flammable stuff stood nearby. It caught fire, and I had to hold a 66-car freight out of my plant. The train stretched across 49's plant too, and such passenger trains as the westbound *Empire State* and all its connections were laid out.

I was busier than the one-armed paperhanger calling dispatchers and the city fire department, when a whole carload of NYC engineers (the civil kind, not the hoggers) clumped into T. They were thicker than army ants. I said, as respectfully as possible in that frenetic moment, "Look, I don't know who you are, but I've got work to do. Will you please get behind my machine or along the windows behind my levers? I've got lots of work to do." Those fellows obeyed without a murmur, I'm happy to say.

I have already denied any superstitions, but I have often wondered about the time that I delayed an engine for train No. 8 *(the Wolverine)* at T. Most of the job there consists of getting engines between Central Terminal and the West Shore roundhouse (where all Buffalo passenger power is housed.) I was new on the job. The half-hour delay didn't account for the entire amount of time it was running late that night, and probably it's mere coincidence that this engine and its train, No. 8, crashed near Rochester some hours later.

P&B Junction was quite a job, too. The New York Central owns the land, maintains the switches and the NX machine, and supplies the day man; but there are no NYC movements through the plant and the Buffalo Creek pays the tab. They paid me one 23-cent check, in fact. The Erie and the LVRR also participate.



William C. Kessel

New York Central officials please take note: Brother Herrington is reading *Railroad* on his own time

The Buffalo Creek is worthy of a story some time, too.

As I worked these jobs, I used to wonder whether Archie Reed, Buffalo Division dispatcher, had television. The moment a train stopped he'd be on the phone. I often had to tell him that I hadn't yet had a chance to find out the source of trouble.

I have repeatedly said that the boss always knew that he could chase me all over town. I was happy that way, considering all that to be good job insurance. Besides, I had a car and was willing to use it. I wasn't surprised when I got up to S.S. 65, Suspension Bridge's two-man piano. I say "piano' because it has about as many strings.

Tower 65 certainly rates a detailed article, too; NYC, MC, LV, Erie, PM (C&O), CN (GT) trains and switchers moving all over the place, and the Wabash is always a theoretical possibility, too. Two double-tracked international bridges, a multi-tracked station and yard, branches and leads, and interchanges right around the compass. The old station, which until recently advertised Rome, Watertown & Ogdensburg tickets, was the entry point for the *Royal Train* in 1939. German prisoners-of-war were told by their fanatical party men that the old slums surrounding the yard were bombed-out ruins. Yes, 65 and the "Bridge" deserves a future article.

And I worked S.S. 63, four blocks from the Cataract, for months without once seeing the natural wonder! Tower 63 is near Niagara Falls Union Station. The op gets a few pennies extra for operating the street-crossing lights, but the job is such that he should be paid for that and get a few pennies for shoving levers. A cozy spot, though, especially when the Lehigh Valley came through town with steamers equipped with pipe organs instead of ordinary whistles. Now, the LV Falls freights are mostly "Dismal-powered," while the one passenger has a road switcher growling grumpily.

"Commuters must've cleaned him out this morning!"

IT WAS at S.S. 63 that I met the girl who eventually became my wife. That put an end to my jumping around, and I looked for a job to bid. I found it soon enough, of course: FO. My wife had one railroad connection, too; her father's business occupied the old Rushford, N.Y. station of the Buffalo & Susquehanna.

But I became attracted to BV (Bay View.) That Bay View isn't quite as scenic as the CNR's nearby Bay View (Hamilton, Ont.), but it is busy enough. It is the red-brick tower that you wave to as you sit on the port side of Buffalo-Cleveland trains, just about as the train gets up speed.

BV has several features worthy of mention. It is the break between the Buffalo and Erie divisions, and between Lines East and Lines West; and the center tracks go to Buffalo (when you are eastbound), while the outside ones go to Gardenville Yard (inevitably "The Garden"). The machine is electric.

The jobs have never been popular with the old guard. There are two dispatchers to breathe down your neck, and the Nickel Plate man can ring you, also. The use of Morse discourages people. It is still used to some extent at Bay View, and I am very glad to have learned the code and thus enjoy a rare advantage. Another drawback is the former custom of having the op run down the steps to pick up consists, a practice now obsolete. And, finally, it is rather far from town. While I've heard of trains being stopped to taxi delayed employes to town, the practice cannot be recommended on a daily basis.

But I liked Bay View well enough to put in two long stretches there. It is a busy place at any hour. The Nickel Plate and the Cindervania share double trackage as far as Brocton, and their joint track passes behind the NYC's tower. There is an interchange track used in rerouting trains around a blocked track. An oddity each year is the double-ended consists ferrying picnickers, a *Hudson* on each end. A man with a telescope could watch outdoor movies, but he'd find his view interrupted by railroad business.

The only reason I left after four years (in two periods) was that the job of leverman at the three-man Towers 48 and 49 (at either end of Central Terminal) pays better. The rate is higher, the fare on one of those self-propelled conveyances which traverse the highway carrying the public is lower, and commutation time is less. Then the decline in business (due in part to the Coal Miners' champion oil salesman) caused the road to cut back the board, and even the 40-hour week which came in September didn't compensate for the fewer jobs. So I was bumped.

I had enough whiskers to stay on the division and bid in a relief job. I work 49A and 50 on different shifts. That isn't a bad arangement, though it takes a week or so to learn to sleep at the right hours.

It also gives me a chance to see my wife some evenings and to work on my model railroad some days.

I'm proud of the layout, by the way. I've never had a derailment yet due to track, and I've run at 250 scale mph.—with cars, backward! It is 0-Gage, of course; I'm not a watchmaker. I mentioned that I'm building the Matt Shay triplex, machining wheels and such on a lathe; and John Prophet III (of the NYC stationmaster's office) and I have completed power a-plenty on the two-rail system.

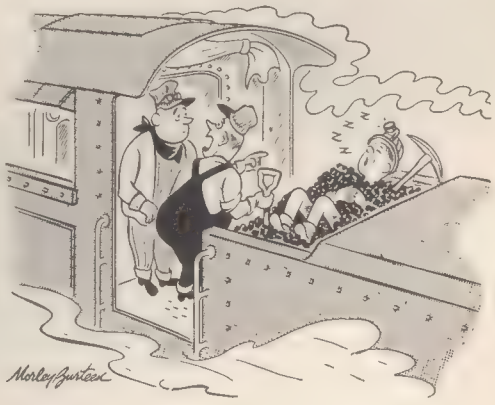
Now, you may ask what I think of railroad work. Things aren't as they were during the war, when a man might move up further in three months than he had in a decade or more. It is a decision for each man to make; if he's handy and can support himself until he can dig in, fine. My own case history speaks for itself; I don't stick around if I don't like my work. If you feel the same way and want to go railroading, here's one man who will understand. I've been a signalman for six years. I'd rather run or fire, but it is a pretty satisfactory substitute.

The job has disadvantages, true. Holidays and holy Sabbaths don't mean a thing. The 40-hour week is a blessing, of course. The 48-hour week left a man entirely out of things in the outside world. But I still can't get a decent day job.

However, pay is pretty good. Security is excellent, once you have built up some rights. And you are pretty much your own boss; you have a job which must be done—period. If you have some free time, you can file some model parts, or whittle or write, or do anything like that which doesn't interfere with your job. You get a lot of free transportation, though you must understand that you can't ride the *Panama Limited* a week after going to work for the New York Central; foreign passes aren't as abundant as free rides on the locals.

Maybe I'm not wholly typical. I enjoy my work, and some people don't. But then most good workers take pride in their jobs, even though they won't confess that they care. And I am from a railroad family; I was exposed to the life from birth. I'm also lucky in having gone to work when I did; cutbacks there will be, but the most elaborate CTC board shouldn't hurt us Buffalo Division men as badly as may happen in some locations, where the job of jockeying trains is simpler.

If you hesitate to go railroading, then, you'd better not. But if you feel that you'd rather work for a railroad than tighten bolts on Henry's production line or push a pencil for Johnny Hancock, perhaps you'll want to talk to railroad department heads and chief clerks. It is unfortunate that few roads have centralized hiring offices, as does the B&O in Baltimore. Still, if you can talk your way into the boss' office with a model of his pet steam engine you might try the scheme. But the chances are he won't make you a hogger right away.



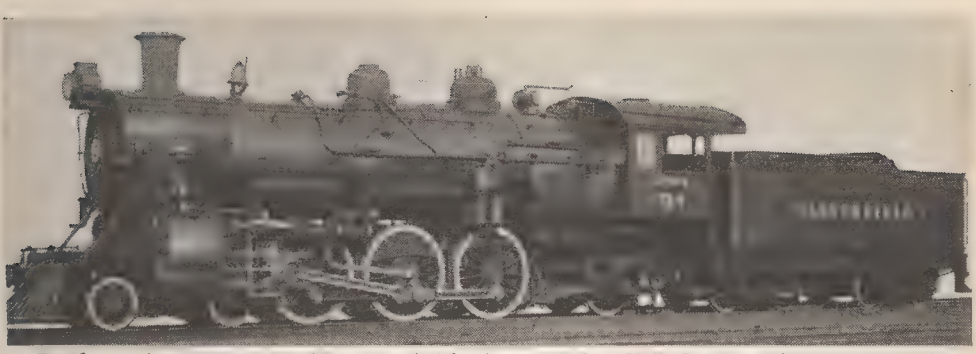
"I'll never get him through the firedoor!"

H. Reid, 2808 Vimy Ridge, Norfolk, Va.

Simple articulated 657, locking knuckles with a 2-8-2, leaves Erwin with a heavy coal drag

Baby *Mallet* 500 has been scrapped, but ten 2-6-6-2s of succeeding M2 Class still shuttle the mine-run trains

First of the H4 *Consolidations* is oldest jack on the Clinchfield roster



Pacific 154 has conservative drivers needed for heavy grades. Tall, flaring stack is unmistakable trademark of all but the newest Clinchfield power

Locomotives of the Carolina, Clinchfield & Ohio Railroad

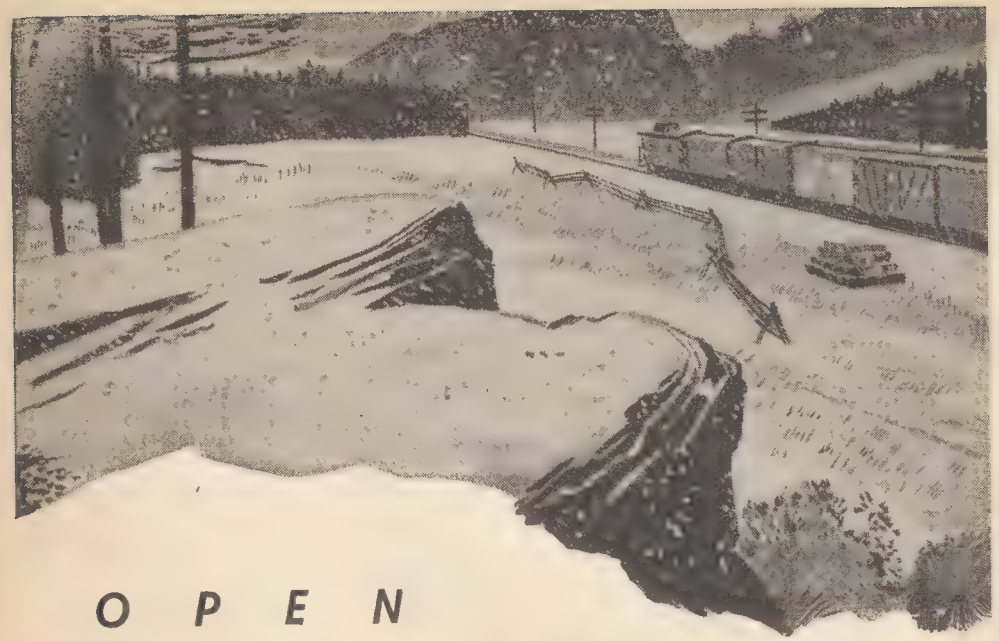
Steam Locomotives

Class	Numbers	Cylinders	Drivers	Pressure	Engine Weight	Tractive Effort	Builder and Date
		2-8-0 (Consolidation) Type					
H4	300–308, 310–313	22 x 32	50	190	174,800	43,882	Baldwin, 1909
		2-8-2 (Mikado) Type					
K4	410–419	27 x 30	56	190	284,800	56,000	Alco, 1923
K3	498	22 x 28	45	190	189,900	43,000	Baldwin, 1917
K2	499	22 x 30	50	200	245,000	46,500	Baldwin, 1911
		4-6-0 (Ten-Wheeler) Type					
G1	99	19 x 26	62	200	121,300	25,400	Baldwin, 1909
		4-6-2 (Pacific) Type					
P1	150–152	23 x 30	62	190	200,900	37,140	Baldwin, 1910
P2	153, 154	25 x 30	62	200	250,100	46,200	Baldwin, 1914
		4-6-6-4 (Articulated) Type					
E1	650–657	22 x 32	62	265	544,700	101,120	Alco, 1943
E2	660–663	22 x 32	62	265	613,000	101,120	Alco, 1947
E3	670–675	21 x 32	62	280	630,000	97,350	Alco, 1943
		2-8-8-2 (Articulated) Type					
L2	725, 726, 728–732, 734	29 & 39 x 32	50	240	531,000	101,560	Baldwin, 1919
L3	735–739, 741–744	25 & 38 x 32	50	245	541,000	101,560	Alco, 1923, 1924
		2-6-6-2 (Articulated) Type					
M2	510–519	24 & 37 x 32	50	200	338,000	77,400	Baldwin, 1923

Diesel Locomotives

Class	Numbers	Drivers	Horsepower	Engine Weight	Tractive Effort	Builder and Date
		Switcher Type				
SW7	350–355	40	1200	248,000	62,000	EMD, 1950
		Freight Type				
F3	800–805, 850–852	40	1500	230,000	57,000	EMD, 1948
**F7	853	40	1500	230,000	57,000	EMD, 1948

**Originally allocated to the Rio Grande and built to UP's 3900-Class specifications.*
***Clinchfield reports it has 12 GP7 Freight Diesels now on order, to be delivered in Jan. or Feb.*



OPEN KNUCKLE

EDMUND A. PUGSLEY

IT'S KIND OF FUNNY how some men take their luck signs so seriously in the railroad game. For instance, some men think an open knuckle on the rear end lets your luck run out. Others think an open knuckle on the head end lets your luck run in.

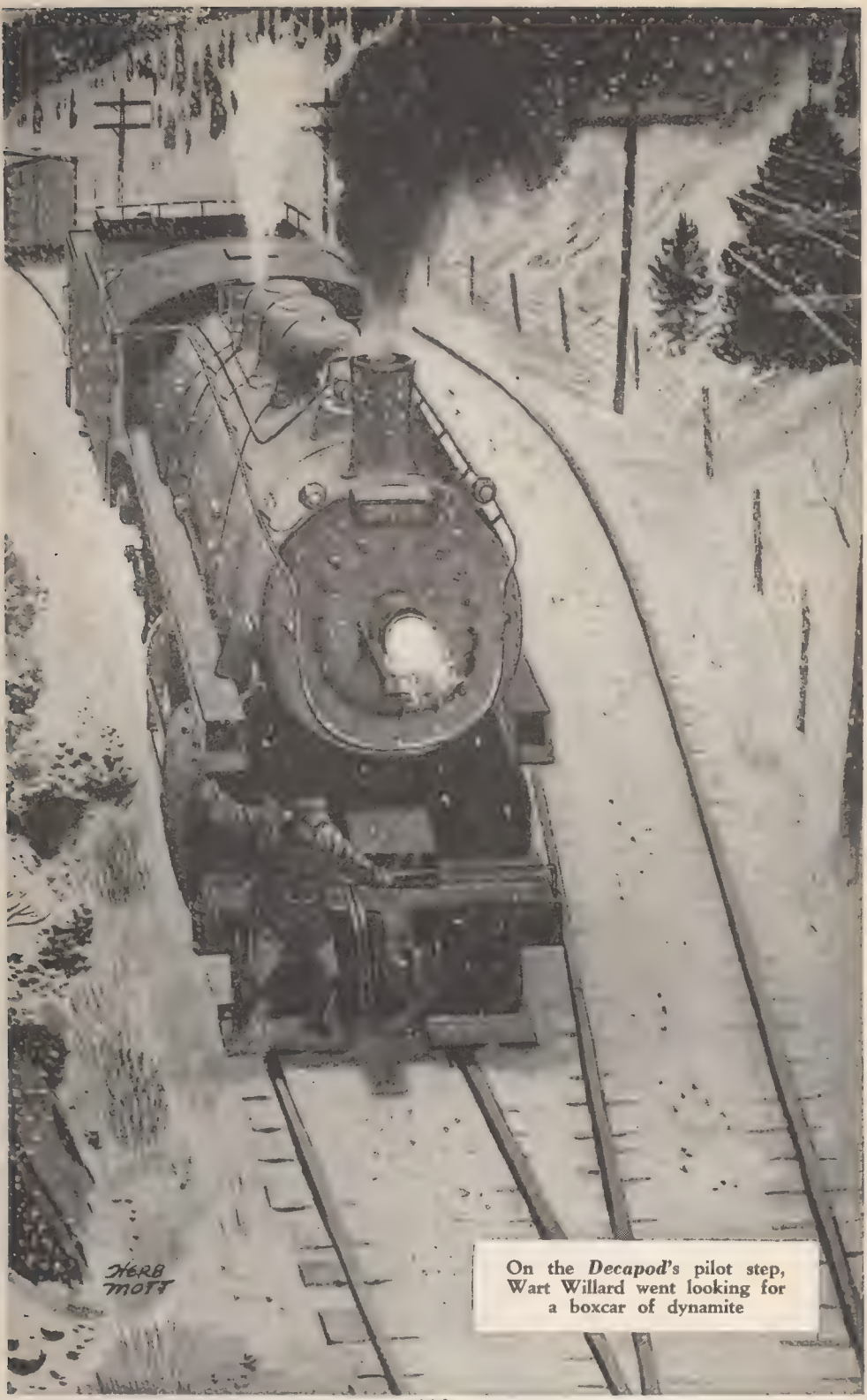
Little Gus Willard, skipper and general kingpin on the Melon City branch line, liked his coupling knuckles set tight shut on both ends—all the way. And he didn't think there was anything funny about it. With Gus it was serious business.

Gus came out of the little shack they called a yard office and hitch-hopped across the high rails, frogs and switches to where the wheezy old *Decapod* had paused for his next command, with old Poke McGatty reclining lazily on his window seat. Gus looked sharply at his undersized son Walt who rated a place as brakeman, and at Jig Malloy, little "Wart's" working companion and general tormentor.

"I ain't checked up yet," Gus piped. "Tell you what I want you boys to do. There's a car of dynamite or some kind of blasting powder over on the National interchange for us. We've got to spot it in the passing track up at Elk Ridge on our way over to the junction this morning sure. It's for that road-building gang that's clearing over the mountain for the power tower right-of-way, and they claim they're all out of shootin' material."

Gus scribbled a number on the bottom of an old switch list and tore it off, passing it to his son. "You boys can go get that car while I finish checking our drag. There's the number and there's only one car on the interchange, the National yard punk says, so you can't make any mistake. Check the seals before you lift it, so we'll be sure nobody's been monkeying with that powder."

Jig Malloy squinted up at Gus from his seat on the pilot. "Wart says he's gettin' married tonight," he chuckled.



On the *Decapod*'s pilot step, Wart Willard went looking for a boxcar of dynamite

"He's not much for size now, but there'll be less when he comes back to work." Jig ran an appraising eye up and down the conductor's nervous frame, then he added: "You sure didn't waste much on material when you turned out that boy, Gus," he grinned. "A rare chip off the tough little old block, huh?"

Gus grunted his disapproval and Wart flushed a fusee red.

"There's many a good thing comes in a small package," Gus growled.

"Like nuts," Jig snickered.

"And diamonds," Gus reminded.

"And chawin' toback!" a lazy voice drawled from the cab window above.

"Huh! Thought you was asleep," Gus said, screwing an eye up at Poke McGatty.

"Still am," Poke drawled. "Jist dreamin' I was workin' on the railroad with the suspicionest little twerp what ever pulled a couplin' pin."

Gus walked around the end of the tender, looked sharply at the drawbar and reached in to slam the coupling knuckle shut. "A good thing you've got somebody to keep an eye on you around here," he growled. "One of these days you fellers'll tempt your luck too far." He swung sharply on his son, Walt. "That's something you want to remember always, son," he warned peevishly. "Keep your idle coupling knuckle closed so your luck won't run out on you. You'll get enough bad luck in any day at this kind of work without coaxing for more."

There was a loud rooster cackle from the cab window. "See what you let yourself in for, when you started on your pop's railroad, Junior?" Poke piped. "You'll jist have one continuous round of preemoonishun, sooper-stishun and downright dizzy dispo-sishun!"

GUS FROWNED up at the engineer with tolerant patience. "Now if I had time, I could give you a timely warning about that old turtle we've got to pull us around all day and sometimes far into the night. The main thing now is—don't let him go to sleep on the way over for that powder car. We've got a list of work today that's as long as his old turtle neck —when it's all out." He lifted his blunt little nose and sniffed. "Smells like fog, too. So watch your step and hurry back, if you want the bridegroom to get home in time for his wedding tonight."

The skipper made a mistake talking about hurrying where Poke could hear him. It was like waving a red flag in front of him. The engineer felt it was his own private job to run the deck and he resented anyone telling him how to run it, particularly an undersized conductor. He resented being classed as a turtle, too. So he wasn't at all keenly interested in this being little Wart's wedding day.

When Gus strode briskly away, his two brakemen commenced to throw come-ahead signals at Poke. But the hogger just sat there nursing his grudge, staring at nothing in particular until he felt like moving. Then he set his reverse bar down and notched back the throttle to a Dead-March-In-Sol speed and left it there. The *Decapod* moved in true turtle fashion until little Wart climbed up into the cab and stood anxiously behind the motionless engineer. Finally the younger man found the courage to speak.

"My dad said . . . now . . . for us to hurry up, Mister McGatty," he said desperately, glancing at his watch.

Poke snapped off his throttle then and turned a cold glare on the troubled shack. "Why don't you hurry up then," he suggested with fine sarcasm. "It's your wedding day, not mine. Me, I'm jist a turtle, your pop said. Did ya ever see a turtle hurry up, little boy?"

Wart's face turned a new dark red. He moved over to the fireman's side and stayed there. The locomotive moved, but slowly. Sawmills loomed along the track, their stacks belching clouds of black smoke to add to the already murky air. Boxcars, flatcars and gondolas lay in the mill sidings, loaded, partly loaded or empty. Wart stared at them without interest. He pulled out his watch and then plunked it back into his vest pocket. He groaned his impatience.

It was only a mile to the National interchange but for Wart it was the longest mile of his life. He looked anxiously out at the heavy mist that threatened to thicken into a pea-soup fog at any minute. From time to time he glared across the cab at Poke's stubborn open frame and opened his mouth to yell at him again. But always he held his tongue. They were nearing the National interchange track with silence between them when fog swept over the yard throwing a screen over the world.

Poke peered through the haze and drifted to a stop. Without delay Wart took off purposefully down the track, repeating over and over the car number on the slip Gus had given him. At last he found a car and checked the number. It was 216360; the number he wanted was 218380. He sighed impatiently and trotted along a long line of empty rails right down to the end of the interchange. He turned and trotted back again, checking the numbers once more. Then he went back to tell Jig about what he had found.

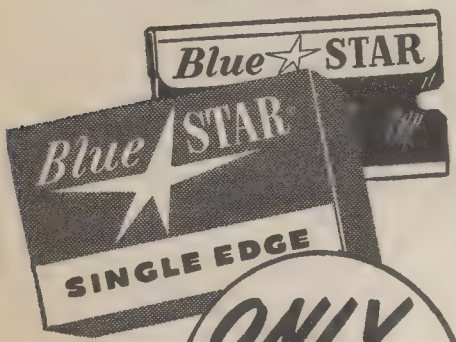
"There must be a mistake in this number," Wart said. "It's the same except for the sixes and eights. The car numbers are all kind of dim, too. Want to come look and see what you think, Jig?"

Jig went along through the fog with Wart and studied the various numbers. "They sure ain't very clear," he agreed. "None of them. And somebody's used chalk on them and that don't help none. Those eights look crooked, but I wouldn't know what to do. Why don't you go and telephone your pop?"

Wart frowned. "No phone handy here. It'd take too long." He walked around the other side of the car again, studied the end numbers, examined the seals and then wrote down the numbers. There was a big card that read *"Fragile, Handle Carefully."* Wart looked at it and his face relaxed.

"This must be the dynamite or blasting powder or whatever it's supposed to be. It says to handle carefully, Jig. Let's

A DIME BUYS A DOLLAR'S WORTH OF *SHAVING PLEASURE!*



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go get Poke and ask him what he thinks."

BACK AT the engine Wart consulted with McGatty. "Dad said there'd only be one car but the number ain't right," he told him. "I'm kind of wondering whether we should take it. There's two eights in the middle where we should have two sixes, but we're losing a lot of time here and we're supposed to hurry back. What would you do, if you was in our place, Mister McGatty?"

Old Poke relaxed and let out a bit of a snort. "What would I do, sonny? Why, now, I don't know. But if 'twas money coming like that to me, I'd take it and hurry up too, before they found out it was a mistake." Then he laughed like it was a big joke. But when he saw the young brakeman's face wrinkle into a serious frown again he relented. "You say, your pop said there'd be only one car? Well, what can you lose by taking it? You got to hustle home and get married tonight, ain't ya?"

Wart made a sudden decision. "Okay, then. Let's go."

Next minute he was giving Poke a signal to come up and couple on. Slowly through the fog the hogger started back for the yard, shoving the tender ahead this time, with little Wart riding the footboard and waving him back across all the road crossings. Poor Wart had little peace; he kept wondering all the while whether he'd made a mistake in taking the car with the funny number.

The fog faded out again before they got back to the yard and Gus was pacing the track like a caged coyote. "Where you been?" he demanded. "Off the track? The dispatcher's having a hem-rage. He's got fifteen cars of livestock over at the junction for Swift's. Hang right onto that load and we'll pick up six and set them out. That'll put that dynamite right in the middle according to the rules, see?"

Wart started to speak about the bad number but before he got a word in Gus was trotting away down between the rows of cars. Jig grinned. "Quit your worrying," he advised. "We brought the only car there was, like he said. Can't be any mistake. Besides, don't forget that we got to get you in early for that wedding."

Wart grinned. Satisfied at last to leave his troubles in the hands of experienced railroaders, he went along the train when they had it set out, coupling airhoses. Up front Poke squinted suspiciously back along the train. "How much you got here?" he called to the conductor.

"Seven hundred and eighty-five tons," Gus replied. "Just right for Elk Ridge hump without doubling."

Poke snorted his disbelief. "Just right to stall me, feels like. You'd better go sharpen that little red pencil and figure it up again."

Gus shook his head confidently. "Nope. It's okay Poke, really. You'll make it. Never knew you to stall yet with anything up to eight hundred and ten."

Poke's big ears disappeared inside the cab without more argument. Presently Jig came shuffling ahead and whistled till Poke grudgingly looked out again. Jig waved a go-ahead signal. Poke dropped his bar down and took off with a jerk. They rattled out of the yard and on up to the depot where the agent passed up a clearance to Poke as he drifted by. The engineer stopped the rear end for Gus to go in and register, then with a highball from the conductor they were off again, moving on out of the straggly town and into the winding right-of-way through timber that gradually grew thicker.

Soon Poke's engine began laboring with a steady rhythm that told the experienced listener she was working up a slight grade. An hour later her struggles grew more pronounced and the branch train slowed correspondingly. Slower and slower they moved with the old *Decapod* filling the woods with the bark of her exhaust until Gus laid down his pencil and gripped the sides of his desk tensely. Any time now he'd know whether Poke had caught up with him on those figures. He'd been adding and re-adding a row of figures and each time they came out the same—on Poke's side. Wart scrambled

down from the cupola and stood anxiously beside his father as the caboose sagged to a near stop. They stared wordlessly at each other until the slack ran back and bunched again, then the train stopped with a jerk.

"That contrary old goat!" Gus exploded, shoving back in his old armchair. "I had to add that tonnage up three times before I knew we had twelve tons too much, but he knew before we got out of the yard!"

THE conductor glanced out the window and leaped to his feet. The caboose was almost—but not quite—clear of the South Road crossing and half a dozen automobiles were lined up, honking their horns impatiently at being delayed, as the van jerked a foot or two ahead, then slacked back again.

"Looks like we'll have to cut and double, eh Pop?" Wart said anxiously.

Gus put his finger to his lips. "Sh-hh!" he warned. "Hold your breath. The old boy's still in there trying; that's 'cause I told him we had fifteen tons less than tonnage limit of eight hundred. He'll move it or blow that old teapot up before he'll give in. But if he knew we had that twelve tons over, he'd lay down right here on the crossing, just for spite."

Poke kept trying, all right. With sand under his drivers, inch by inch he coaxed his faithful old engine to move the train a little farther toward the summit. This was the heaviest spot on the hill. Gus got down on the bottom rear step of his caboose as it slowly cleared the crossing, holding up a warning hand to the irate auto drivers, for fear that Poke might lose his grip and let the slack run back and smash into one of these cars. But Poke didn't slip back. He held his engine to her task and presently the caboose was clear of the road and the stalled traffic was roaring past.

Poke made Elk Ridge passing track and stopped with the engine clear of the upper switch. Jig dropped off and cut behind the car with the funny number, giving Poke a signal to move ahead again on up over the switch. There was a truck waiting down by the passing track and the driver called to Gus as he walked forward.

"You got a car of grocery grub for us?"

Gus shook his head. "Nope. Just powder. Or dynamite. You sure use plenty of that stuff up here. This is the second car this week. Must be doin' a powerful lot of rock work."

The driver nodded glumly. "It's a tough piece of country to put a road through. But we've got plenty of powder yet. It's grub we need. The boys are gonna feel pretty bad if we don't get that car for the cook house right soon. Cook's out of so many things he's makin' flapjacks outta spuds."

"That's bad," Gus sympathized. "I'll tell the agent to check up on it when I get into the junction. Maybe that car of groceries is comin' out the other way. Maybe we'll have 'em comin' back," he added hopefully.

"What time will you be back?"

Gus studied his watch. "Ought to make it along here about an hour or so after noon. Got a flock of livestock, so they'll be putting the bee on us to get out pronto."

Wart climbed up on the powder car and twisted at the handbrake. The ratchet was tricky and didn't hold very well, but he finally got a few notches set on it. Jig found a block of wood and wedged it under a car wheel. He cut off the car and sent Poke back out to the main. Gus watched while Wart threw the derail switch on and locked it. Then, with a wave to the truck driver, they started off down the other side of the hump to the junction.

The junction yard crew had its train made up when Gus booked in. The livestock was on the head end. They ate their lunch and were all ready to head back out the branch at five minutes after one. It was starting to snow when Gus came out with a "31" order in his hand and a heavy frown on his round face. The main line trains were all running late with snow or

mudslide trouble in the big canyons, and here was a National passenger train being diverted across the branch to start east because its own railroad was buried in slides.

"Wouldn't you think we'd have troubles enough of our own without having to handle trains for a railroad like the National?" Gus grumbled as he passed up Poke's copy of the order to meet the diverted extra at Elk Ridge up there at the top of the branch hump. "Like as not they'll stick us up there for an hour—maybe two hours. Who knows? And us with these fifteen cars of livestock to spot and unload besides our regular switching. Now this snow. It'll be worse, too, up there on that hump. Luck is sure running against us today," he complained.

Poke snickered. "You forgot to mention 'bout the wedding," he reminded. "We got to get home in time for that, remember?"

GLANCING up at Poke, Gus set his mouth tight to check his retort, then walked around to the front of the engine. With a look of disgust at Jig he slammed the coupling knuckle shut.

"Seems like you young bucks've got to learn the hard way," he wailed. "Wouldn't you know our luck was bad enough already, without coaxing for more?"

Jig Malloy screwed up his mouth. "Your beloved son left it that way. He pulled the pin when we took your crumb box around to the tail end."

Gus sighed and shook his head. "He jist ain't normal today," he excused. "A good thing when he gets married and settled down so he can keep his mind on his work."

Jig snickered. "He won't have any mind of his own then. His wife'll have that from now on."

The skipper let a dirty look speak for his opinion of Jig's humor. Soon they were under way again, the *Decapod* bravely shouldering her load. As they climbed toward Elk Ridge, the snow grew heavier. Gus had sent Wart up ahead to help Jig head in at the passing track for the diverted National train.

"You boys be mighty careful how you handle that powder car when you head in on it," Gus had warned, and Wart worried about that all the way up the hill as he sat on the fireman's side watching ahead while the tallowpot baled coal. Poke had his window open and the snow blew back around him, coating his steely hair and scraggly moustache until he looked like Santa Claus. But the hogger wasn't feeling like Santa Claus. He was getting more grouchy as the storm persisted, and he was ready to take it out on anyone who got in his way.

"They'll be hauling powder out'n that car we spotted here, most likely," he warned Wart, as he whistled for Elk Ridge. "You'd better skip along down ahead and git those fellers to break down their pile of powder boxes so's we won't knock them tumblin' down when we couple in, see? We don't want that little bride of yourn to have to come and scrape you up in a basket afore the weddin'," Poke snorted. "After that you'd best git out on the main again and watch out for that extra we're meetin' here. He might come blastin' along through this thick snow expectin' to find us in the clear. We've been a long time climbing that hill," he grouched.

"Okay, Mister McGatty," Wart agreed. "I sure hope that extra don't keep us here very long."

Poke sniffed. "She'll wait for ya, don't worry, boy. They always do if they're any good. If they don't, yur better off."

Wart went out through the little window and along the cat walk, before easing himself down to the pilot. When Poke slowed for the switch, he took off into the snow, floundering on ahead like a young deer. In a minute he was out of Poke's sight. He reached the standing car and seeing the knuckle open on it, slammed it shut. That's the way his dad would want it, he thought. Jig would have to open the knuckle on the engine when he was coming up to make the coupling.

Wart looked for the truck then, to warn

the driver, but there was nothing in sight. The door of the car was closed to within about an inch of the latch and Wart decided it hadn't been opened for trucking away yet. He turned and trudged on through the snow, found the derail switch and set it clear, then went out for the main line at the switch, ready to flag the extra.

Jig opened the passing-track switch and climbed back on the pilot, giving Poke a signal to come ahead. Poke opened up and got his train moving briskly, then shut off and let it drift into the downgrade siding. He kept his head out to watch for any signals from Jig. He was watching him closely, thinking they must be about far enough to see that car of powder, and reaching for the airbrake valve, when he saw the car loom dead ahead. At the same moment he saw Jig's arm move wildly and heard him yell a warning.

Jig was streaking out of sight toward the woods as Poke found and threw over the valve to full emergency—too late for the crash. Poke's hair bristled under his peaked cap and a prickly sensation ran down his spine as he set himself for the concussion that would blow him to eternity. He heard the heavy thud of falling boxes in the car. Then silence.

Poke looked at his air gage to see if it was moving to release. When he looked out the window again Jig Malloy was yelling something and floundering back toward the car, waving his arms. Poke looked at Jig and then ahead to the car. But there wasn't any car there now. It had vanished!

POKE FELT another streak running down his spine now, and it wasn't warm and prickly. It was icy cold. That car had already gone past where the derail should be and there was no sound of wheels bumping over wooden ties. That little Wart must have thought he'd be daddy's little helper and so set the derail switch clear. Poke yelled to Jig to cut him off. But Jig had disappeared now, too, as completely as the runaway car. Poke pulled in his head and looked for his fireman.

"Git down there behind and cut me off, Fred! Jump! We've got to catch that car or all hell will break loose! Maybe it's too late now," he moaned as he kicked over his brake valve again to full release. "But we've got to *try* and git it! We've got to *git* it. Poke faltered as he thought of the alternative . . . that passenger train coming up the hill through the snow meeting a carload of dynamite romping down into them . . . Poke felt sick and his next words were the most he'd prayed in long years. "We jist got to, Lord!"

Fred turned the anglecocks on the trainline, but he didn't wait to break the hose apart. Yanking the coupling pin up, he felt Poke jerk back the throttle. The *Decapod* leaped ahead with a startled snort and took off down the passing track. Poke was leaning far out of his window squinting ahead, not knowing where that car was, his hands ready to act the in-

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stant something showed. He overtook Jig first, plunging through the snow and checked the locomotive down enough for the brakeman to fumble for and find the pilot with his nimble, excited feet. Then on again.

"That little runt!" Poke muttered into the driving snow. "Now where in tinkle time did he git to? Bet he ran away and tripped over his own feet!" he snorted in disgust.

The switch light flashed by, showing both green and red and Poke didn't know which way the switch had been or whether they'd broken the points open. However he guessed they must have done the latter since Jig didn't have time to open it and Wart wouldn't know enough. The engineer commenced to wonder about the coupling knuckles then. Why hadn't they coupled in the siding? Likely both knuckles closed, he thought. That crazy Gus—always wanting knuckles closed to save his luck!

Poke was hanging out far enough to keep his eyes on Jig's arm as he clung to the pilot away down in front. The snow was slapping hard at his face now, filling his eyes. But he ignored it; Jig's hand wasn't easy to see and he couldn't afford to miss a sign. He caught a quick insistent motion to come ahead fast. Poke snapped at the throttle again, sending the *Decapod* leaping ahead. Something inside him seemed to come alive again, like it might be hope. She sounded like she'd seen something, he thought. Like a dog sighting a deer.

"Go git him!" Poke purred. "Go git him, old girl! You kin do it!"

It might have been half a mile, it might have been a mile and a half; Poke didn't know. He wasn't watching for landmarks. He was watching for signals from Jig Malloy's hand through the driving snow. Then he got it—a sudden washout! He slapped off the throttle and gave the old Jack the secret works, his hands working automatically but his eyes still peering down the tunnel between his peaked cap and his long weather-beaten nose. He braced himself instinctively for a crash, felt the couplings meet and heard the thud of the joint. Still he kept his eyes glued on Jig until he caught the sweep of his hat in a wide arc telling him he'd done it; to get stopped and head back for the hole at Elk Ridge with everything he had.

Poke did just that. When Jig didn't get off to protect against the extra, Poke stopped for the switch and turned to yell at him. But Jig was making fresh signs and pointing between the car and the engine. Poke stared. Down the car ladder a little snow-plastered figure gingerly eased himself and dropped down beside Jig to brush the snow from his eyes and face. Then he grinned up at Jig. It was their own little Wart Willard—the bridegroom-to-be!

JIG'S JAW gaped. "Now how, when and why did you get up there?" he spluttered.

Wart seemed quite self-assured. "Why I was heading out to flag the extra, like Poke said, and just turned around in time to see the danged car coming at me there at the switch. Kind of lucky I'd unlocked the switch, so I slammed it over and grabbed the ladder."

"Well, for the luvva Aunt Jemima, whyn't ya set the brake when you got up there, and stop the doo-dad thing?"

"Well, now, I almost did stop it, but that screwy ratchet wouldn't hold. So soon's I heard you coming at me like fifty miles an hour, I got scared you'd smash that dynamite so hard it'd blow us all up. So I let go the brake, laid down on the running board and hung on. I figured if we were both moving fast like, maybe you could couple in easy enough to . . . to . . ."

Jig dashed the snow from his hat. "Yah, I know what you mean," he growled. "It didn't make no matter about that there extra passenger train maybe coming up that there hill to sort of stop you kind of sudden like, huh?"

Wart looked at Jig and shook his head sorrowfully. "It wouldn't make much matter to Mary Louise which locomotive

Down the icy ladder crept a little snow-covered figure—the bridegroom-to-be, himself

touched off this carload of powder," he murmured. "I wouldn't get back down again in time for the wedding tonight."

Someone was yelling from the switch. It was Gus. He trotted down in a frenzy when he found both the locomotive and carload of powder missing. And he wasn't happy yet.

"Hey! For Pete-amighty's sake! Get that car back into clear before you get knocked back!"

Poke didn't move to Gus' frantic back-up signals. "That switch is broke, ain't it?" he growled. "We broke through it comin' out."

Gus peered down at the switch but Wart came waddling in. "It's okay," he said. "I opened it before the car got here."

Poke wiped melted snow from his face and the tip of his nose and released his brakes. They backed into clear and stopped again. Gus locked the switch and leaned on it with a surge of relief. Then he walked back to join the court of investigation.

"Lucky we're not all blown to kingdom gone!" he wailed. "The dynamite must be packed in chesterfield cushions thick as Poke McGatty's window seat. Let's take a look in the car before those truckers come back and start asking funny questions."

"It ain't open yet," Wart said.

"It's been open," Jig said. "It's not locked."

He reached up to pull the door open but it didn't budge. Gus took hold with him and at last the door slid stiffly open. They peered into the gloomy car. Then suddenly they all jumped back.

"Oh, my glory!" Gus gasped. "You've killed a man!"

"Not right out," Jig contradicted. "He's moving his head, and he's still sitting up."

"He's dead—or worse!" Gus moaned. "Look at him! The whole carload of dynamite must have dropped on him. He's covered with blood. Oh, my glorified godmother! We'll all be hung for this!"

The conductor doubled up a leg. "Give me a lift in. Hist me up, so's I can have a look."

THE crew histed him up just as the victim moved and groaned. As he backed away, Gus almost fell out again.

"You guys all through havin' fun?" the corpse asked in a queer, juicy tone.

"You . . . you're not dead!" Gus quavered.

"Not yet. Do I look like I was?" he asked in disgust.

"You're all blood," the skipper told him. "Where are you hurt most?" he added, inching closer.

The victim raised a hand to his face and wiped away a layer of red liquid, flicking it disdainfully at Gus. "Blood?" he grunted. "That ain't blood. That's ketchup! I'm swimming in the cockeyed stuff." He rubbed some more from his ears and chin. "It's dripping down on me from those busted cartons up there. How about getting some of these two-ton cases off my legs so I can get up?"

Jig and Wart scrambled up into the car and Poke came down to squint in for a looksee. They dug cartons and cases out from where they had been tossed to form a miraculous protecting circle around the man.

"How'd you get in here?" Gus asked. "Who are you? One of the camp men?"

"Second cook," the stranger told them. "Flunky most of the time. I was helping to unload the groceries and went to sleep waiting for that danged truck driver to get back."

Fear dropped away from the skipper. Aware of his responsibility now, he turned sympathetically to the cook. Taking his arms, he eased him to a more comfortable position. "Are you hurt much?" he asked. "Try and get up."

With help, the free rider got to his feet and then flexed his arms and legs. He grinned. "Just my dignity—and complexion, seems like. And I was having such a beautiful dream, too." he sighed. "Long Beach and the surf and the mermaids and everything."

By the time they had the cartons and cases piled up in a more orderly way, Gus suddenly remembered something that had been troubling him. "Say! I thought this car was loaded with dynamite!" he protested to no one in particular.

"You mean dynamite? Or maybe blasting powder?" queried the second cook.

"That's the way I got it this morning," the skipper told him.

For a moment or so the crew puzzled over this strange state of affairs. But their rider had ideas. "I thought it was dynamite, too, for about a minute, boys," the second cook drawled, gingerly rubbing some of his lumps. "You fellows can sure treat 'em rough."

Gus jerked a thumb toward Poke, still standing curiously in the doorway. "Tell him about that," he advised. "He did it. He's the engineer."

"Sure! Sure!" Poke snapped. "Always blame the engineer. Like as not your knuckle was open someplace again," he added with a snicker. "With you it's always the engineer or luck or something!"

The second cook nodded gravely. "Guess I was pretty lucky, at that. Just imagine if it *had* been dynamite, like you say. Seems like there was a mistake in the car numbers today. This car was due last week."

Poke snickered, jerking a thumb toward Gus. "Tell him about that, mister. He makes those mistakes. And he's sure a wizard at figuring tonnage."

GUS FROWNED. "How'd I know this car had groceries?" he snapped. "Anyway, it was only ten or fifteen tons more than the dynamite figured. A man'd think you was pullin' it all yourself, the

fuss you make about a few extra tons."

Then suddenly the skipper stopped talking to listen as a long locomotive wail sounded from down the Ridge. The National passenger extra pounded up and over the hump with a whistled greeting to the waiting branch freight. When the markers had disappeared into the snow toward the junction, Gus spoke to Poke.

"Sorry about the tonnage figures this morning, Poke. And thanks for going after this car like you did. Sure might have been bad . . . Thanks a lot." He turned to the camp cook.

"Next time you take a nap in a boxcar, leave the door open, mister," he advised. "You'd have saved a lot of trouble to all of us if you had. And it might have been a lot worse if we hadn't all been on the job. Pretty lucky, all around."

Poke accepted Gus' apology with little notice. Then they examined the contents of the car to discover that the damage to the groceries was surprisingly small. Gus made a list of these for his little book, with the second cook insisting that nothing be said about his personal injuries. The crew took the part-load around and placed in the siding again behind the van. As they set the handbrakes, Gus came out to see that they made a good job of it this time.

"You young twerps have had a good lesson in luck today," Gus told them soberly. "Maybe you'll make sure about keeping all your knuckles closed after this." Then with a little grin he winked at Jig. "We didn't do so badly after all. Unless we have a flock of bad luck, we'd ought to get the tail-end brakeman home in time for his wedding. All we've got to do now is to shove those fifteen cars of stock into the abattoir, let them hustle out ten loads of cattle and spot the other five, then hightail it to town."

All this time the engineer had been down on the snow monkeying with the drawbar of his engine. Then moseying over to the caboose, Poke whistled to the crew. "Here a minute, boys," he called.

The others moved in curiously. Gus took out his watch significantly. "Time we were hitting out of here, boys."

Poke ignored him and walked over behind the caboose and pointed to the coupler. "Look there, boys! And this is the feller who claims an open knuckle is bad luck. Look at that one on his tail end and right under his nose all afternoon. Wide open!"

Gus looked down at the cause of it all with gaping mouth. Then he frowned. Pigs squealed in a stockcar. A calf bawled hungrily from another. Gus walked around behind his van and slammed the knuckle shut. Then he turned with a grin.

"Okay, boys. You win. But let's say I'm still lucky. Lucky to have a crew good enough to give our bad luck the runaround —even with an open knuckle!"

So, like I said, some of these railroaders take their luck tokens mighty seriously. And maybe they're right. Who knows? The big thing is, these same fellows take their railroading seriously, too. And that's what adds up when the skipper books in another ten-thousand, fifty-thousand, hundred-thousand or maybe a million-dollar train at the end of the trip, all for the same modest day's pay.

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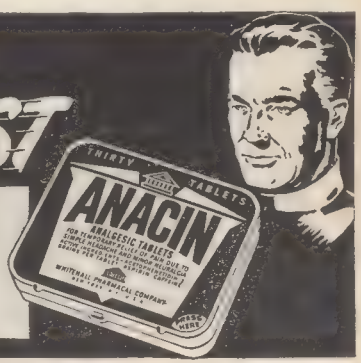

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No.29 A Heart-felt Gesture. Faithful F&C Employees Go a-Caroling For President Yancey

by Carl Fallberg

On the Spot

MOTHER HUBBARDS. Wayne Howland's article (Oct. '50) held the close attention of Harry L. Gangwer, 21 Eurana Ave., Weatherly, Pa., because "I worked on such engines 30 years ago as an electrician, the kind of work I am doing today on steam and Diesel power."

"Those old girls gave us lots of trouble," he says, "especially the train-control conduits and circuits, for at that time boilermakers or their inspectors would almost invariably find a broken stay-bolt in a place where the jacket would have to be removed—on the right side—and, of course, the conduit wire had to be taken out. But never on the *left* side!

"Mother Hubbards of the 900 series were used here as hillclimbers on the old M&H Division as far back as I can remember. Their cabs were too narrow for a fat engineer's comfort. Firemen got $2.20 for a 12-hour day. Back around 1906, when we were kids, we always got a thrill out of seeing the red light in the sky at night while a 40-car train was being dragged up Weatherly Hill. Nowadays a Diesel walks up that same hill, almost without a sound, with 115 empties tied to her tail.

"Long ago, during slack periods one or two of us electricians were furloughed, and how the boilermakers and machinists would snicker! Now it's the other way around, with Diesels operating and more coming. The boilermakers and machinists are worried. The days of the old sledge-hammer, chisel-bar and emery-wheel are over. You can't repair $200,000 Diesels that way."

Another reader whom the article "Mother Hubbards and Muzzle Loaders" carried back to his youth is Clement K. Corbin, 60 Fernwood Road, Summit, N. J., who writes:

"I have seen locomotives of every class illustrated in the article, except the Strong experimentals. I remember when double-cab engines first appeared. Many a time I rode the *Black Diamond* from Jersey City or Newark to Ithaca, N. Y., when she looked exactly as shown on pages 24-25 of October *Railroad*. I don't recall her being headed by a 4-4-0 as shown on page 37; those engines must have been used temporarily.

"Often I rode behind a 500-Class Erie *Atlantic* as pictured on page 38, and twice in the cab. After one cab trip I lunched with the hogger at Port Jervis. He said his name was Rocket. Those engines were originally *Vauclain* Compounds. The original guides and high-pressure cylinder appear in the photo as used after rebuilding. Erie had many passenger *Vauclain* Compounds. Some 500s were rebuilt with conventional boilers and deck cabs. Why Erie used this type of boiler I don't know, as they burned soft coal.

"Too bad you didn't show the beautiful Reading and Jersey Central fast passenger engines and some Lackawannas. The one Lackawanna shown, No. 952, page 39, is so covered with men that you can't see much of the engine. I have ridden thousands of miles commuting behind Lackawanna 900s."

Corbin says an article on the pre-Mother Hubbard hard-coal-burners would be interesting, and goes on:

"As a boy I lived at Elizabeth, N. J., our back yard abutting on the Pennsy, and was familiar with all the Pennsy, CNJ and Lehigh Valley engines operating into Jersey City before the Mother Hubbards were put into service. At that time the LV used the Pennsy and CNJ tracks through Elizabeth for its passenger and fast freights, while coal for the Valley went to Perth Amboy over its own line.

"The passenger engines were all conventional *American* types burning anthracite. The Pennsy actually burned hard coal on its New York Division passenger engines to meet hard-coal competition.

"To get big enough grates, the fireboxes were deepened; the Pennsy's famous 'long-legged 10' had a firebox 9 feet deep. Cabs stood on the back of the boiler over the firebox and were glassed-in at the rear. Thus the fireman and engineer were separated, as they were on the Mother Hubbards. Jersey Central was still using some engines of this type until after the turn of the century, despite the obvious economy of locomotives burning steam-sized coals. CNJ bought some *Vauclain* Compounds as late as 1892."

* * *

FREE copy of a new brochure, *100 Years of Locomotive Progress on the Milwaukee Road,* may be had by writing the road's Public Relations Dept., 356 Union Station, Chicago 6, Ill. The 16-page booklet, 8¼ by 10¾ inches, has pictures and specifications of 25 locomotives —steam, electric, Diesel-electric—beginnig with the old One-spot, a Norris-built *8-Wheeler* that pulled a 2-car train over the company's first 5 miles of track between Milwaukee and Wauwatosa, Wis.

* * *

CANADA'S nation-wide railway strike last August tied up Prince Edward Island tighter than a bull in a county fair, according to Keith Pratt, who runs a general store at Bloomfield Station, P.E.I.

"No engine turned a wheel," he writes. "All stations were closed, railway mail boxes were sealed so that no letters could be posted in them and both Canadian National carferries that normally ply between P.E.I. and Nova Scotia were moored to their docks. Just before the strike started, more than 200 automobiles driven by Americans and residents of the Maritime Provinces were waiting to be ferried over to the mainland. The only way we could get off the Island was by the Wood Island Ferries; the cars were lined up there for nearly a mile. I'll never forget the time I had getting 40 cases of fresh eggs shipped to the mainland.

"Bloomfield is a small village, but ordinarily every night some 50 persons, young

Robt. W. Richardson

There was no bus for the school kids, so the little train of the Clarion River Railroad did the honors, along with other chores. Shown at Portland Mills, Pa. school stop, the Heisler-geared engine was built in 1916 for n. g. Tionesta Valley, one-time owner of the CRR

and old, gather at our station to watch the train come in. While the strike was on, the depot was deserted. We missed the trains."

* * *

MEALS ON WHEELS. You can't get rich by selling a $2 item for $1; yet that, according to *Railway Progress,* is what the Baltimore & Ohio is charging for its dining-car meals. The Pennsy situation is much more encouraging; the road spends only $1.45 for each dollar of food revenue received.

Why does it cost so much to feed the dining-car trade? The answer is simple. Managers of well-run stationary restaurants figure 25 percent as the absolute limit of labor costs, but on a railroad diner labor takes nearly 70 cents of each dollar spent. And an average dining-car waiter can serve only ten meals in four hours, compared with 50 meals per four hours that a restaurant waiter totes on his tray. Out of each dollar of dining-car revenue, besides 70 cents for labor, 50 cents goes for food. Add the cost of fuel, equipment, laundry, retirement and unemployment taxes, switching, and rolling-stock replacement, and you get a formidable deficit.

* * *

SUBWAY cars on a car-ferry were shown by Joe Easley in last September's *Along the Iron Pike.* "That is a very rare occurrence," comments Norman Rolfe, 179 Marcy Ave., Brooklyn, N. Y., who explains:

"Several such trips were made around March '50 to transfer some 300 cars on the Queensboro line of the IRT Division, New York City Transit System. Those cars had just been replaced by new equipment and were towed from Bush Terminal, I believe, to the division's main shops at 147th Street, Manhattan. The Queensboro line has no direct track connection with the rest of the division, but does connect with the BMT Division. Its cars are overhauled at BMT's Coney Island shops.

"From Queens Plaza in the big city to Coney Island is about 15 miles by rail, but the trip is easier than the one made in the days when a track connection exisited with the rest of the IRT (via Queensboro Bridge and 2nd Ave. 'El') and the cars were overhauled at 147th Street. The latter was a roundabout route requiring much switching."

* * *

LOOKOUT MOUNTAIN steam road, pictured in our Aug. '50 issue, is remembered by W. E. Neet, Box 588, Selma, Ala., who lived at Chattanooga, Tenn., at the time it was operating up and down the mountainside.

"We called it broad-gage," he says, "to distinguish it from the narrow-gage line at the top. In those days two hotels stood on the mountain: Point Hotel, on the northern brow, whose proprietor, H. Clay Evans, built Incline No. 1, and Lookout Inn, at the top. The so-called broad-gage line served the Inn, while the narrow-gage ran between Point Hotel and a place known as Garden of the Gods.

"The broad-gage had two 2-6-0 Bald-

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win mountain-climbers, each with low wheels and boiler raised at the rear, but they did not stay long on the job; the Baldwin Works took them back, for some reason or other. Then the Inn rented a Baldwin 0-6-0 from Chattanooga Belt Railroad. Shortly after the Spanish-American War, when the Inn shut down, J. T. Crass, an old railroad contractor, took over the broad-gage and used it for hauling coal up the mountainside to fire the boilers of his Incline No. 2.

"Part of the broad-gage was electrified for Mr. Crass by Warner McCall, later president of St. Louis Car Co. I put in the power plant and electrical equipment of two cars used on the mountain top. Mr. Crass bought one of the Belt road's Forney types, No. 22, to move freight to the top. Those engines had been acquired by the C. E. James Co. to operate the so-called dummy lines in and around Chattanooga. They ran to Sherman Heights, East Lake and East End. Later, the Rapid Transit Co. took over and electrified the trackage."

Mr. Neet offers to give us the history of all steam and electric lines that served Chattanooga and vicinity. He says: "The country's first self-propelled car was tried out on the East Lake Line. I helped to unload it from a flatcar at the transit company's Newby Street depot and rode it on the trial trip. In some respects the trial was successful, but the new car was too slow for passenger service. It had a Westinghouse gasoline engine driving a DC 220-volt generator, with two 25-hp. Westinghouse 12-A DC 220-volt motors on the axles."

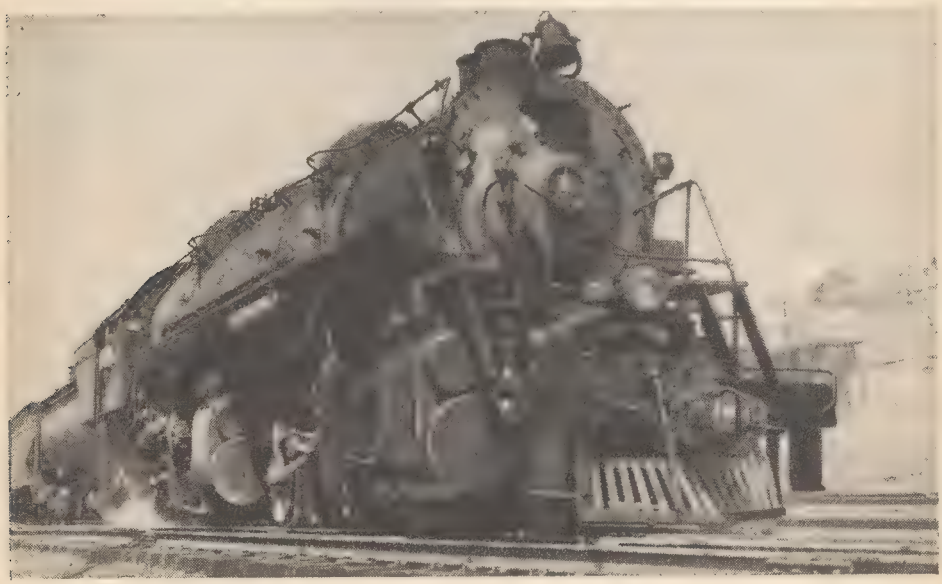
* * *

BITTER-SWEET memories cling to the photo of Katy passenger Engine No. 274 in our Aug. '50 issue, according to Rev. R. J. Kiker, D.D., a former Railroad YMCA general secretary, Berger, Mo., who writes: "When I saw the picture I recognized that engine as originally No. 66, on which I had a glorious ride one hot summer night in August, 1911. The Katy had bought her two years before as one of a lot of 4-6-0s and had given those engines the numbers, beginning with 40, of scrapped *American* types.

"My friend Engr. Jerry Scott was killed on that same engine, the 274, train No. 30, five miles north of Fort Worth, Texas, in a cornfield meet, at night, with a westbound freight, Engr. Hudgins, *Mikado*-type engine. Just before the

Double-stacked B&O 2-8-8-2s have been prettied up with new Capital dome emblem on smoke box door. They do their stuff on Seventeen-Mile and Cranberry Grades

B & O



H. Reid

Grey Lumber Co. has use for little old cap stack locomotive and flatcars with link-and-pin couplings on its 3-foot gage private pike at Waverly, Va. Engine No. 8 is a 4-6-0, formerly of the ET&WNC

crash Jerry's fireman, Hammock, met death by jumping into a telegraph pole. At the time I rode that locomotive the throttle was held by Billy Lewis, since deceased.

* * *

EIGHTY-EIGHT YEARS LATE. A gold medal for heroism that Georgia's Legislature had voted to award William A. Fuller, Sr., in 1862, has just been given posthumously to his only son, William, Jr., an elderly Atlanta lawyer. During the Civil War the father was hard-hitting Western & Atlantic (now NC&StL) conductor with the rank of Confederate Army captain. In '62 he led the exciting chase that resulted in the capture of a group of Federal raiders led by James J. Andrews who had seized the *General,* the engine of Fuller's train.

Wartime gold scarcity kept the Legislature from decorating the Southern hero in '62, but recently the medal was pinned on his son by one of Governor Talmadge's staff. Scene of presentation was the Cyclorama building in Grant Park, Atlanta, which houses the old W&A locomotive *Texas.* Captain Fuller had used the *Texas* to overtake the General. The latter stands now in Chattanooga Station.

* * *

DRAFTEES from permanent railroad jobs will be rehired for those or similar jobs upon expiration of their service with the armed forces, their dependents will continue to get railroad passes while the men are away and, on request, each man in military or naval service will be sent regularly copies of his company's employes' magazine, if the road issues one.

* * *

ARGUMENTS over the farthest west railroad in U.S.A. may perhaps be settled by Lester C. Harlow, Lt. Comdr. USN, 4609 County St., Portsmouth, Va., who gives the following location of common carriers at westernmost points:

Port Angeles Western, 5 miles south of

H. D. Runey

On D&H at Nineveh Jct., N. Y. maintainer Howard Wallace starts routine check of switches and signals in newly installed CTC system. *Below:* 1525 clears the nerve center

Tyee, Wash.; 18 miles west of 124 degrees longitude.

Northern Pacific, Moclips, Wash.; 9.5 miles west of 124 degrees.

Southern Pacific, about 5 miles north of Coos Bay, Ore., 12.2 miles west of 124 degrees.

Northwestern Pacific, one mile north of Loleta, Calif.; 11 miles west of 124 degrees.

"That's how they stack up when measured on the charts," says Harlow. "If it's passenger service you're figuring, honors go to the SP. If it's any kind of service, PAW holds the westernmost record.

"America's southernmost road is the Florida East Coast at Florida City, Fla.; the easternmost is Maine Central at Eastport, Me., and the northernmost (except in Alaska) is a tie between several roads that cross our Canadian border on the 49th parallel." All we can add is that M&PP and Espee reach highest and dip lowest, respectively.

THREE bells from scrapped Chicago & Eastern Illinois locomotives are now calling the faithful to prayer in a small Normandy village of 1800 souls, Littry-les-Mines. The three bells originally used in the church there have been silent since June 8, 1945, when they were cracked in a celebration of the town's liberation from the Nazis by American troops. C. M. Roddewig, the railroad president, learned of this through a Chicago newspaper story and wrote the mayor of the French village offering to replace the ruined bells. His offer was joyously accepted. Bells which had been retired from service when the C&EI began converting to Diesel power were shipped to France and installed in the old edifice.

* * *

GRANDPA'S LAST RUN. When George Bowles, Milwaukee Road veteran, La Crosse & River Division, made his final trip as conductor the other day, he had unexpected company. His four grandchildren, ranging in ages from 8 to 12, boarded the train and rode with him as far as La Crosse, Wis. And was Grandpa delighted!

* * *

INFORMATION WANTED. "Know anyone whose last name is Mountain?" asks J. L. Mountain, 1661 Olive St., Bakersfield, Calif. "More than 100 years ago five brothers with that name landed in eastern U.S.A. from their home in Ireland. Four settled respectively in New York, New Jersey, Ohio and Pennsylvania, and worked for railroads or steel mills. The fifth crossed the continent, sailed to Australia, and started a ship chandlers' business. Any clue to present whereabouts of Mountain family members will be appreciated."

* * *

GREAT NORTHERN is expanding a little, subject to ICC approval, having taken an option to purchase, at $1,700,000, all capital stock of the Pacific Coast, a 30-mile railroad operating in and near Seattle, Wash. Says GN President Gavin: "We think the PC will make a fine addition to our trackage. It has a good yard in Seattle's south end, a double-tracked line from there to Renton, plus industrial trackage and property."

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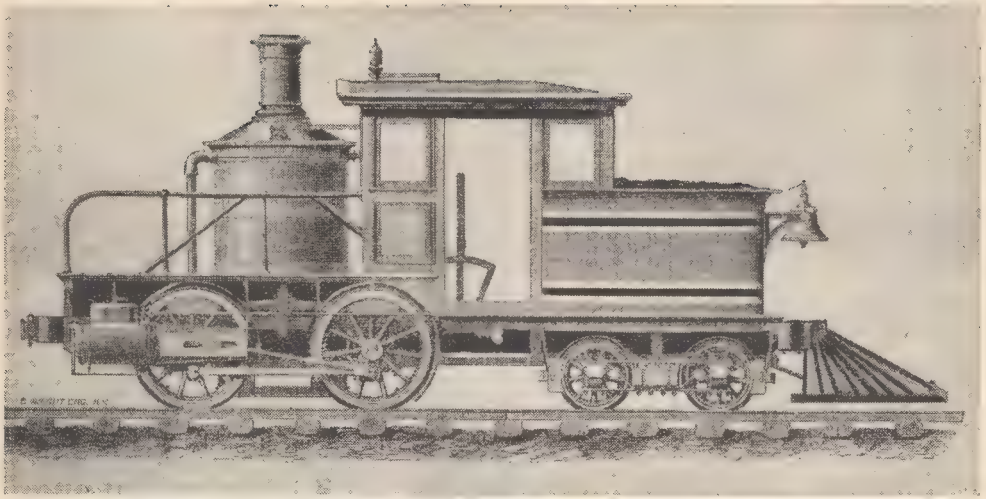

Railroadians of America

Conceived in 1872, tea kettle on wheels was great locomotive designer Matthias Forney's original idea for an improved light tank locomotive with vertical boiler

FOSTER, Wis., a cluster of houses at a railroad crossing, was named for N. C. Foster, a rich eccentric who built and operated the Fairchild & North Eastern RR. The F&NE was dubbed the "Foster & Nobody Else" and ran between the hamlet and Fairchild, 15 miles to the east. These facts come from Robert F. Ewald, 447 Avon Drive, Pittsburgh 28, Pa., in answer to our request for data on towns named for railroad men. Bob used to live at Fairchild. He describes Foster as a capable business man who made his money in lumber and spent it building railroads.

"In the late 1880s Foster built, little by little, a railroad west from Fairchild to Mondon, Wis., about 35 miles. First he called it the Fairchild & Mondon, then the Sault Ste. Marie & South Western. Possibly he visioned a line from the Soo to the Twin Cities, a dream dissipated by construction of the Soo Line. Foster's pike must have been profitable, for it was sold about 1892 at a good price to the Chicago, St. Paul, Minneapolis & Omaha.

"Foster kept up his lumber operations, extending his logging roads until they reached Greenwood, about 25 miles northeast of Fairchild, and began operating regular service on the F&NE in the early 1890s. The line prospered for many years, until automobiles became popular, but was junked shortly after World War 1."

* * *

ABANDONMENT of its 16½-mile line between Union City, Tenn., and Hickman, Ky., is being sought by the Nashville, Chattanooga & St. Louis in an application to the ICC, reports Stanley D. Crews, 206 N. Main St., Crossville, Tenn. The road has also applied for the right to end passenger service on its line between Bruceton, Tenn., and Paducah, Ky. And, with ICC sanction, the East Tennessee & Western North Carolina is abandoning the narrow-gage part of its line from O'Brien, Tenn., to Cranberry, N. C., 22.6 miles.

* * *

SMOKY MOUNTAIN item in our Oct. '50 *Spot* department was most interesting to John W. Milton, Jr., Rte. 2, Batavia, Ohio, who was in Sevierville (*not* Steubenville), Tenn., the day the town fathers put gravel and tar on the track of the poor tax-delinquent railroad.

"Being a railroader myself," he says, "that sight made me so mad I could hardly see straight. I had gone to Sevierville to take railroad pictures and look over the line. One of my shots shows the men

doing their dirty work. The Smoky Mountain Railroad is a necessity to the town's businessmen but is bankrupt. Talking with the line's receiver, I obtained quite a bit of information. Will pass it on to anyone who sends me a stamped addressed envelope. If 100,000 railfans throughout the country were sufficiently interested in the fate of this little road to kick in a dollar apiece, I believe it could be saved and even made to earn money."

* * *

"CARNEGIE SCOTCH," an article by Watson B. Berry telling of his visit with President Benjamin Harrison in a private car (Aug. '46 issue), has a recent aftermath in the form of a letter from R. S. Moore, the Milwaukee Road's Canadian freight and passenger agent, who writes:

"I note that Jimmy Plunkett has just retired after serving for 42 years as steward on one of railroading's most historic business cars, the *Sherbrooke,* used by the Quebec Central's general manager, A. M. Hand. That was the very same car which formed the setting for 'Carnegie Scotch.' "

Indeed, it was. According to the *Canadian Pacific Spanner,* it also served as the private car of four U. S. Presidents: Rutherford B. Hayes, Benjamin Harrison, Grover Cleveland and William McKinley. Built in 1872 for the Baltimore & Ohio, it was originally called the *Maryland* and later carried President Cleveland on his honeymoon. When Jimmy Plunkett first went to work on that car as steward, it was No. 21, then used by General Manager Frank Grundy of the Quebec Central.

* * *

MODEL RAILROADING isn't much of a pleasure when the mercury in the thermometer sizzles up to 160 degrees. You can take T. R. Goodwin's word for it. Besides being superintendent of Death Valley National Monument, Goodwin has a 16 by 34-foot model layout with 6 steam engines, one Diesel, 20 passenger cars

Thanks to Southern railroaders' ingenuity, traffic on line adjacent to derailed UP boxcar was not held up. Track gang just re-spiked rails so trains could get around the cripple

Doyle B. Inman

Union Pacific

Death Valley's one and only railroad has the added, if dubious, distinction of being the hottest pike in the country. Owner and operator Goodwin thinks nothing of 130 degrees; but when the mercury climbs to 150 he gets hot under the collar and quits railroading

and 60 freight cars to keep him occupied.

Temperature of 125 or even 130 mean little to Goodwin, who has acquired a tanned and leathery skin from 17 years of contact with Death Valley sun; but when the mercury tops 150 or so, he shuts up the low-ceilinged shed that houses Death Valley's biggest, smallest, longest, shortest and only railroad. The nearest full-blown carrier, Union Pacific, touches Las Vegas, Nev., 145 miles east of Monument headquarters.

Goodwin's interest in his hobby dates from 1935, when he bought a toy train for his son. Later he began building his own rolling stock, tracks and other model equipment, making special trips to Las Vegas to observe how a big road operates.

His present layout, five years old, is still in process of construction. It serves a village of 40 electrically-lighted houses, factories and business places which Goodwin copied to scale from existing structures. Figurines and tiny vehicles dot the streets. There are block signals, switches, tracks secured by 20,000 miniature spikes, and 1800 feet of wiring.

Goodwin opened Death Valley Monument under National Park Service supervision in 1933. Since then it has become an increasingly popular tourist attraction. Last year it drew about 250,000 visitors. His staff of 26 men includes shop and road crews, office workers, naturalists and rangers.

* * *

ANSWERING a *Spot* query about engine numbers similar to wheel arrangements, James E. Dawson, 2003 Lee St., Brunswick, Ga., writes: "Atlantic Coast Line has a *Pacific* type (4-6-2) numbered 462; so has Chesapeake & Ohio. Panama RR. has a *Mogul* (2-6-0) numbered 260. Central of Georgia has a *Mountain* type (4-8-2) numbered 482."

Changing the subject: "The Diesel section of *Railroad's* roster of Southern motive power last spring omitted six units known as Diesel coach trains. These are made up in two units each, the first consisting of the engine room, RPO, and baggage-express compartments, the second unit being a 65-foot air-conditioned day coach. They went into service in the fall of 1939 and are named and numbered as follows:

"1, *The Goldenrod,* named for Alabama's state flower; 2, *The Joe Wheeler,* named for Engr. W. J. Wheeler; 3 and 4, *The Cracker,* named for Georgia, the Cracker State; and 40 and 41, *The Vulcan,* on the Alabama Great Southern, named for the mythical deity of which there is an iron statue atop a Birmingham mountain."

(Editor's note: As for coach trains, we have made a rather arbitrary ruling with regard to running only front-end power in our locomotive rosters, omitting—as in the case of the Long Island and others—passenger-bearing motors, etc. As for *The Joe Wheeler,* we can't recall any other American railroad train named for a locomotive engineer, although it used to be fairly common practice for a veteran hogger's name to be painted on his cab.)

* * *

QUERY. "Does anyone know of a mixed train operating in U.S.A. which includes a sleeper, a diner, a parlor car, a lounge car, or even reclining-seat, and/or air-conditioned coaches?" asks W. P. Grant, 2039 N Broad St., Phila.

"The Northern Pacific," he comments, "used to have a Pullman on its Seattle to Walla Walla run which united the *North Coast Limited* with mixed trains Nos. 347-348, but the latter are now ordinary passenger trains. And the Milwaukee used to have a sleeper from Chicago to Iron River, Mich., which left the Windy City on No. 9 and arrived at its destination on mixed train No. 709, northbound only; but this has been discontinued."

Grant also inquires: "Does any motor-train include a parlor car, a diner, or a lounge car? Lehigh Valley trains between Rochester and Rochester Jct., N. Y., carry a Pullman sleeper behind a doodlebug, although timetables do not designate them as motors. I know of doodlebugs with air-conditioned coaches.

W. R. Hicks

There is double-edged irony in the picture above: first because the Class DP-1 Diesel is parked beneath coal bunkers; second because Reading, a big coal hauler, is turning more and more to oil burners

"Longest run of any motor-car is, I believe, that of Santa Fe Nos. 45 and 46 between Wichita and San Angelo, 543 miles; but what is the longest run of any American mixed train? My guess is the 292-mile trip of Southern Pacific mixed train Nos. 155-156, Dallas to Beaumont." (Note: Outdistancing SF's 45 and 46 is WP's RDC-1 schedule between San Francisco and Salt Lake, 928 miles.)

* * *

SURPRISE greeted the arrival in our circulation department the other day of a Chicago, Burlington & Quincy voucher for $3.50 covering a year's subscription to *Railroad Magazine* for Wilbert Felgenhauer, Steward, Ill., with the following explanation from Donald Ashton, CB&Q executive assistant:

"Mr. Felgenhauer, a railfan, recently reported a hotbox on train 53 passing through his home town at about 12:47 a.m. Although the forward brakeman discovered the hotbox about the same time, the fact that Mr. Felgenhauer phoned the information to the station operator made it possible for the op to call a car man prior to the train's arrival at Rochelle, Ill., to rebrass the Journal, thus saving this important train much delay.

"Inquiry developed that Mr. Felgenhauer is deeply interested in rail publications and regularly bought *Railroad Magazine* at a newsstand, not yet being a subscriber."

(Editor's note: Thanks, CB&Q, for rewarding an observant railfan by giving him a subscription to this magazine.)

* * *

IGNORING RULE G, Delaware, Lackawanna & Western fans are flocking to the Suburban Cocktail Lounge, 62 Brick Church Plaza, East Orange, N. J., to admire three handsome paintings of oldtime railroad stations which served the area before the railroad elevated its tracks. According to Russell Buckhout, 10 East 40 St., New York City, the stations depicted were located at Brick Church, South Orange and East Orange.

George Koluis, who acquired the paintings and has them on permanent exhibition in the lounge, hopes to add to the collection as time goes on and extends a cordial invitation to railfans to drop in.

* * *

WILL HORACE THORNE, author of "The Wreck of the 216", recently submitted to *Railroad,* please get in touch with the editor as soon as he reads this?

YOUR CHOICE OF TWO GREAT BOOKS

THE WRATH AND THE WIND, by Alexander Key
(Published at $3.00)

Alexander Key's novel is an intense experience. It probes the mansions, the slave auctions, the gambling rooms, the ornate hotels of the burgeoning Gulf slave ports. Maury St. John, the disillusioned young American doctor—the golden Catherine, who loved him, the mute girl Zeda caught in the slave trade—these are the principals, but the stage is peopled by many another whose portrait lingers in the mind: the slaves and slave dealers, sailors, half-breeds, wastrels, madams, dilettanti, bankers, railroad promoters, doctors—friends and enemies of Maury St. John.

The Wrath and the Wind is as cruel as sin, brutal as the plague of which Maury is the agent, solacing as late-found love and forgiveness. Alexander Key has the Gulf Coast and the sea in his blood. His writing creates an unforgettable atmosphere as remarkable as his portrayal of intense action and dramatic suspense.

OR

THOMAS FORTY, by Edward Stanley
(Published at $2.75—Third Large Printing)

It is 1778. In the print-shop of the *Loyalist Gazette* in British-occupied New York City, a journeyman printer faces up to Liberty. Tom Forty has to answer the big question freedom asks of men in any war. He comes to his fateful decision on a winter's night in Sam Fraunces' tavern, after a fight with a Tory officer. It is a long, hard journey via the patriot underground from the kisses of a barmaid to the revolutionary strongholds of Westchester. In this novel covering virtually all the Revolution Edward Stanley has created characters with the honest, unadorned bone and sinew of the time; more than this, he has re-created history with thought and care and research, until it comes vividly alive.

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EACH YEAR, according to Gustav Metzman, New York Central president, "2½ billion dollars is being drained out of the taxpayers' pockets to make life easy for the various competitors of your railroads." This he calls "a national scandal." He made the charge in a speech in connection with the dedication of the new Central Terminal, a multi-million dollar passenger station at Toledo, Ohio, built and financed entirely by the NYC.

He said: "Super-subsidies to our competitors were six times as much as the total net income of the nation's railroads last year! It is little wonder, then, that your railroads generally have not been financially able to provide new passenger stations as fast as they were desired."

* * *

OUR GOOD FRIEND Gerald M. Best, Beverly Hills, Calif., writes to inform us that picture we ran in the September issue, page 48, as a hitherto unknown "find" is in reality "one of the better known items of the Brady collection of Civil War photos owned by Uncle Sam. Prints of this photo are sold by the Signal Corps, I believe. Photo in question is of U. S. Military RR No. 133."

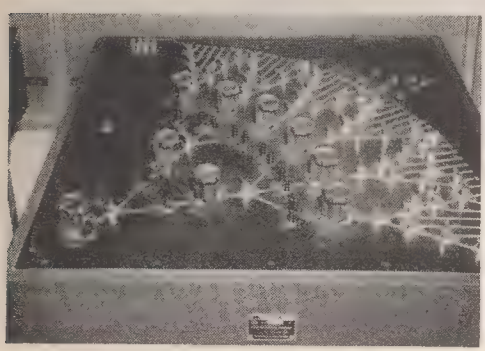
The balance of Best's letter makes *Railroad* caption writer's face very, very red. "The boys out here are going to get quite a kick out of the caption under the photo on page 137," he goes on. "The SP has no shops in El Monte, which is a small city on the eastern outskirts of the Los Angeles area and to the best of my knowledge boasts a station and a tower at the PE crossing, but nothing else of a railroad nature. Your photo shows 3835 (being scrapped) which was sold to Hyman-Michaels at Azusa, not far from El Monte, and I suspect was taken at the scrapping place there. In 1949 the Santa Fe scrapped the following 3800-3900 Class engines: 3805, 3818, 3835, 3874, 3875, 3899, 3908 and 3939. In 1948 they scrapped 3919, and so far this year (1950) the 3813, 3887 and 3921 have gone. No. 3702 also went this year, the first 4-8-2 to go."

Canadian Pacific

Tower looming at commanding height is retarder "brain" of Canadian Pacific's St. Luc Yard at Montreal, opened last July. Building houses controls, *below*, for regulating speed of cars in descent from hump apex to classification area

ROBOT control guides trains on the IRT Division of the New York City Transit System, according to the *New York Times,* commenting on "the newly installed $3,000,000 push-button signal tower at the Westchester Storage Yard of the IRT in the Bronx, described as the largest and most modern of its type in the world . . .

"Contrasting with the former manually-operated levers that control switches, the



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* * *

LAKE SHORE & MICHIGAN SOUTHERN pix and data are wanted by C. W. Jernstrom, 114 Fremont St., Elkhart, Ind., for use in a pictorial history of LS&MS and all 13 lines which became part of it.

* * *

LAST STOP is the Reader's Choice Coupon (page 145) which guides your editorial crew in selecting material for future issues of *Railroad Magazine*. Some readers use the coupon. Others prefer not to clip the magazine; they send home-made coupons, postcards or letters. Regardless of how votes are given, all count the same. Results of balloting on the November issue show as follows:

1. Recipe for a Class I Railroad, *Thompson*
2. Light of the Lantern *(ET Brake equipment)*
3. China Interlude, *Cope*
4. On The Spot
5. Electric Lines *(Citizens' Traction Co., I)*
6. Ticket To Destruction, *Dellinger*
7. Shortline to Nowhere, *Tobisch*
8. Locomotives of the Santa Fe, II
9. While the Angel Watched, *Knapke*
10. Traveling Auditor, I, *James*

Best photos: 27, 88, 99, 26, 34

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C. A. Elston

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ITEMS sent to the *Switch List* and *Model Trading Post* are published free, in good faith, but without guarantee. Write plainly. Print name and complete address.

Because of time needed to edit, print and distribute this magazine, all material should reach the Editor eight weeks before publication date. Redball handling is given to items we get the first week of each month, if accompanied by latest Reader's Choice Coupon (clipped from page 145 or home-made).

Due to scarcity of space, we prefer that no reader be listed here oftener than once in three months.

Use these abbreviations: *photo.*, photograph; *cond.*, condition; *ea.*, each; *elec.*, electric; *env.*, envelope; *eqpmt.*, equipment; *esp.*, especially; *info.*, information; *n.g.*, narrow-gage; *negs.*, negatives; *p.c.*, postcard; *pref.*, preferably; *tr.*, train.

Because complaints have reached us that collectors have been using the term *pix* interchangeably for photos and drawings we are dropping this abbreviation from our listing. Specify "photo" or "drawing." All other abbreviations remain the same, as shown above.

The term *tts.* refers to public timetables, unless preceded by *emp.*, when it means *employe's* (operating) timetables.

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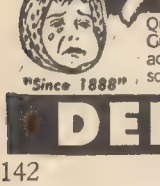

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Switch List

JIM ADY, 333 Ximeno Ave., Long Beach 14, Calif., will pay highest prices for Alco's *Via the Union Pacific;* Oct. 4th '41 *Ry. Age;* '36 to '43 incl. *Santa Fe* mags. Also has many emp. tts. to trade. Wants emp. tts. Western rds.

(R) LYLE H. BAIE, 2008 Cumberland St., Rockford, Ill., will sell 250 *Railroad Magazines*, some dupls. '33 to '48; all good cond. *Model RR* '38 to '47; *Trains* '43 to '47, odd copies *Model Craftsman* '34 to '48.

HENRY P. CHILDERS, Union Mills, Ind., has emp. tts. to trade. Send your list for his list; wants GN, NP, CMStPP, Soo Line.

FRED CLARK, 599 Delmas Ave., San Jose 10, Calif., has *Trains* Vols. 3, 4, 6, 7 perf. cond. Will sell or trade for any bound vols. *Trains* exc. 1 or 5.

J. R. COOK, 608 West Main St., Murfreesboro, Tenn., will exch. RPO envs., cards, U.S., foreign postage stamps.

W. H. COX, 1146½ S. Clark Dr., Los Angeles 35, Calif., will buy old rr items with historical int., passes, stock certs., paper money, books, lanterns, lamps, loco bells, headlights, steam gages, whistles, etc. Esp. Calif., Colo. items.

FRANCIS E. CRADDOCK, 48 No. Main St., Barre, Vt., wants to buy recent CV, B&M, Rutland emp. tts.

MARVIN DOUDNA, 204 S. 11th St., Cambridge, O., wants to buy *Off. Guide* issued prior to '30. Interested in joining rr club and contacting railfans in and around Cambridge and S. E. Ohio. Also desires list rrs issuing emp. mags.

WALTER A. FATI, 435-36th St., Richmond, Calif., will sell 12, 2¾x4 n. g. photos taken Aug. '50 in Durango, Colo. yards, now closed to railfans, $1.

(*) L. C. FITZGERALD, 529 Hamilton, Wood River, Ill., will trade or sell ITC photos or negs., size 616, for other elecs.

DEL GERBAZ, 4205 Marks Pl., Ft. Worth 7, Tex., has new lists tts., passes, lanterns, uniform buttons, assorted railroadiana, considerable Colo. materials.

LESTER F. GOODELL, 213 So. Pearl St., Centralia, Wash., will pay $5 for NP emp. timecard, Tacoma Div. '13 or prior yrs.

(R) ROY GORHAM, Bloomington, Ind. (Rte. 1), will sell 84 *Railroad Magazines* Oct. '43 to date, excell. cond., no torn pages or covers, 10c ea. plus postage.

C. C. GRAYSON, Box 1431, Longview, Tex., will sell size 116, p.c. eng. photos AT&SF, Frisco, IC, SP, many others. Also Frisco, MoPac negs. Free list.

ALLEN J. HAY, 819 Plaza Dr., Evansville, Ind., will sell 17 in. brass loco bell, cleaned, polished, clear lacquered; state offer.

LOUIS HENNICK, 2124 Fairfield Ave., Shreveport 101, La., will sell *Mixed Train Daily*, $11; *High Iron*, $5.50; *Highball*, $5.50; *Wonder Book of Trains* (Carlisle), $1.50.

(*) STEVE HOFFMAN, 511 Wellesley Rd., Phila., Pa., collects steam, elec., Diesel tts.

(R*) FRANK HOLZSCHUN, 601 North 5th St., Kearney, N.J., will sell *Railroad Magazine* Apr., June, July, Sept., Oct. to Dec. '48, an. to Dec. '49; Jan. to date '50; *Ry. Progress* mags. Nov,, Dec. '49, Jan., '50; *Trains* Oct., Dec. '49, Jan. to date '50; to highest bidder or for best offer of rr negs., any size, incl. streetcar and elec. All mags. excell. cond.

(R) T. A. LEAR, 345 S. 4th St., Coshocton, O,, wants Mar. '49, Mar. '50, May '50 *Railroad Magazines;* will trade 2 *Railroad Magazines* from Aug. '44 to Aug. '48 for one of above, good cond. List or more info. on request. Encl. stamp.

(*) RONALD LEITCH, 12815 Woodside Ave., Cleveland 8, O., will make and trade 8 mm motion pictures of trolleys of Cleveland Transit System and Shaker Heights RT (black and white or color) with some other 8 mm movie-juice fan willing to shoot equal amt. of footage of local trolleys or interurbans. Exch. would be on equal footage basis for perfectly exposed shots.

(*) ARTHUR LLOYD, Jr., 270 Valdez Ave., San Francisco 12, Calif., will sell size 616 western steam, juice photos; also some midwest and Utah juice, 13 for $1. No list; specify wants. Will also sell or trade SP, WP, NWP, AT&SF, Pepco, SN, IER, T&ND emp. tts.

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JERRY T. McCARTHY 6920 S. Figuerora St., Los Angeles 3, Calif., wants GB&W, DSS&A tts. Will sell *Trains* mags. Feb., Mar., July '44, 25c ea. p.p.

Capt. C. B McCOID, 41B Battle Park, Columbus, Ga, will sell early *Trains, Model Railroader, Model Craftsman;* also many 00 gage model locos, reasonable price.

J. R. McHENRY, 412 E. Spring, Olean, N. Y., wants info., photo old PS&N (Shawmut Line); has old Shawmut emp. tt. to exch.

JOHN F. MINKE, 3rd, 76 Norman Pl., Tenafly, N. J. will sell used, unused Morristown & Erie tkts., B&M tkts. Write for list. Wants to corres. with NYS&W M&E, M&NJ, L&NE, L&HR fans.

(R) EDWARD A. MORAN, 3629 Oxford Ave., Riverdale, N. Y., will sell *Railroad Stories* '18 to '48.

J. L. MOUNTAIN, 1661 Olive St., Bakersfield, Calif. offers mag. with SP historical feature leading to building of Tehachapi Loop; will trade for railroadiana, negs., etc. Has large exch. list books, mineral collec. samples, many other items.

(R) WILLIAM PARKER, Cando, N. Dak., wants Dec. '39 *Railroad Magazine.*

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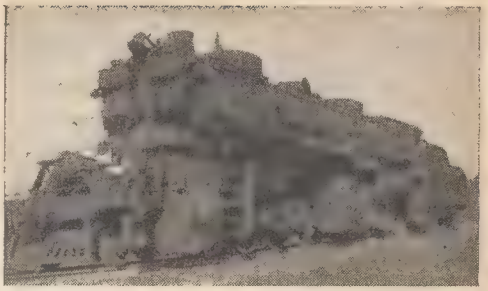

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(R) ROBT. G. RUMER, 630 W. Chew Ave., Phila., 20, Pa., will sell *Railroad Magazine* '33 to '50; *Loco Eng. Journals* '31 to '50; *Model Builders, Ry. Age;* pass. and frt. Annuals; many other mags. Write for list.

(R) E. RYDER, R. D. 1, Brewster, N. Y., will sell *Railroad Magazines*, 3 '30s; 10 '31s; 2 '35s; 3 '37s; May '41; Feb. '42; 7 '43s; 8 '45s; 7 '47s; compl. yrs. '43, '49.

PHILIP S. SAMPSON, 503 High St., Alexandria, Va., will sell quantity rr passes antedating '27 for several decades. Details, rr names, positions, dates, etc. given upon request.

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(R) LEROY E. SPRAGUE, 962 McKinley Pl., Elmira, N.Y., will sell *Railroad Magazines* '34 to '49 compl., good cond.; state offer for lot; also many back issues *Model Railroader.* Will pay good price for Jan. '42 *Trams.*

(*) E. L. TOMBERLIN, 528 61st St., Oakland 9, Calif., wants motorbus negs. size 116, 616 any local or intercity Co. Will trade size 616 negs. locos, Diesels, Elecs., etc. KSTL, Sac. Nor., SP, WP, ATSF, Okla. Term., Ala. Belt, State Belt, Blake Bros., etc.

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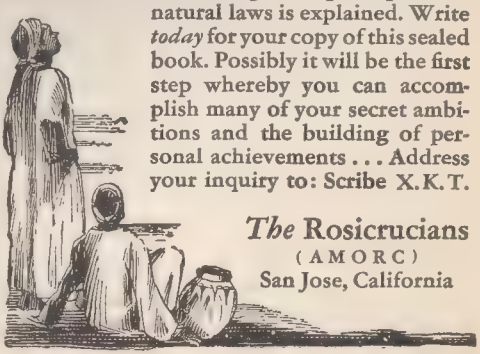

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GARY HEFLIN, 3003 16th St., Arlington, Va., wants to trade Lionel 2020, 027 loco for any other Lionel loco '47 to date, fair cond.

GUS KARN, 1963 Senate Ave., St. Louis 18, Mo., wants S gage 3/16 in. scale trs., all AF new Diesels, cars; also Miller and Dayton Diesels. Will swap HO scale, AF, Maerklin, Hornby, Trix, new cond.

JOHN R. KOCH, 5 Main St., Joliett, Pa., has list Lionel, AF, O gage eqpmt., *Model Railroader* mags. for sale or trade. Wants Lionel 783 coach, 2624 observation. Answers all mail.

RUSSELL C. McLAREN, 1035 Mapleton Ave., Oak Park, Ill., will sell Lionel, AF, O gage locos, pass. and frt. cars, transformers, accessories and misc. eqpmt., all excell. cond. List, 3c stamp.

RICHARD D. MILLER, 456 Southland Blvd., Louisville 8, Ky., will sell PRR 0-1 elec., HO. All brass. Operating pantographs. Test run, $25. Also wants built-up interurbans, pref. bodies only, HO only.

J. L. MOUNTAIN, 1661 Olive St., Bakersfield, Calif., offers real copper ore, quartz, colored pumice for filling cars, stock piles, etc.; enough for HO, 50c; O, $1 or trade plus express.

EDWARD SA LETTEL, 16 Withey S.E., Grand RAPIDS 7, Mich., will sell Lionel loco, PRR elec. type with pantographs, 2 std. gage Lionel cars, eng. $15, cars for $5; all for $21 compl.

ALVIN SAUFFER, Laraway Rd. No. 1, Elwood, Ill., will sell new (never used) TT gage eqpmt. Send for list or will trade for Lionel 027 gage eqpmt.

Vincent F. STENERSON, 374 E. 209th St., Bronx 67, N.Y., wants to buy photos Bronx or Westchester trolleys prior '25; wants to contact HO gage modelers in Bronx to join or form club.

WALTER G. VOELKER, 86 N. E. 50 Ter., Miami, Fla., wants live steam loco; also std. gage steam loco.

Flagstops

FANTRIP. The Akron Railroad Club announces annual trip on Akron, Canton and Youngstown Railroad mixed trains. Club members will leave Akron, O. on No. 95 at 10:30 a. m., arrive New London 1:10 p. m. Returning, leave New London 1:45 p. m. on No 90, arrive Akron, 4:30 p m.

RAILBOOK. W. W. Norton & Co. announces publication of *American Locomotives, 1900-1950*, by Edwin P. Alexander, a continuation of the story begun with *Iron Horses*. Volume contains well over 100 full-page plates, together with diagrams and descriptions, beginning with the first *Atlantic* and *Prairie* types of fifty years ago. Locomotive illustrations have been carefully chosen to show milestones in improved designs and for photogenic interest.

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